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ABSTRACT

This report describes the development and contents of a computerized catalog of teacher training products. The catalog was compiled by the staff of the Stanford Center for Research and Development in Teaching (SCRDT) Program on Teaching Effectiveness as part of an effort to develop a systematic teacher training model. A 117-item product description form developed by the staff was used to analyze and describe each of the 657 products entered in the catalog. This report presents the frequency and distribution of product characteristics according to the following major categories: developers, subject matter specificity, target outcomes for teachers, target outcomes for students, product availability, the nature of the training situation (including whether materials must be supplied by the user), and the availability of field test results. The extent of agreement among the analysts in describing products was tested on a sample of six products. The range of values was 3 (maximum disagreement) to 6 (maximum agreement). The overall mean agreement on the 117 descriptors was 5.7. For 45% of the products, the developers responded to a request for verification of the description of their products. The compilation and tabulations show what areas of teaching and what teaching skills product developers had addressed as of the fall of 1973. The means of making the catalog available outside SCRDT are under consideration. The catalog is not included in this report. (Authors)

STANFORD CENTER
FOR RESEARCH AND DEVELOPMENT
IN TEACHING

Research and Development Memorandum No. 116

TEACHER TRAINING PRODUCTS: THE STATE OF THE FIELD

Prepared by the

Program on Teaching Effectiveness, SCRDT

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Introductory Statement

The Center's mission is to improve teaching in American schools. Too many teachers still employ a didactic style aimed at filling passive students with facts. The teacher's environment often prevents him from changing his style, and may indeed drive him out of the profession. And the children of the poor typically suffer from the worst teaching.

The Center uses the resources of the behavioral sciences in pursuing its objectives. Drawing primarily upon psychology and sociology, but also upon other behavioral science disciplines, the Center has formulated programs of research, development, demonstration, and dissemination in three areas. Program 1, Teaching Effectiveness, is now developing a Systematic Teacher Training Model that can be used to train both beginning and experienced teachers in effective teaching skills. Program 2, The Environment for Teaching, is developing models of school organization and ways of evaluating teachers that will encourage teachers to become more professional and more committed. Program 3, Teaching Students from Low-Income Areas, is developing materials and procedures for motivating both students and teachers in low-income schools.

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Abstract

This report describes the development and contents of a computerized catalog of teacher training products. The catalog was compiled by the staff of the SCRDT Program on Teaching Effectiveness as part of an effort to develop a Systematic Teacher Training Model. A 117-item product description form developed by the staff was used to analyze and describe each of the 657 products entered in the catalog.

This report presents the frequency and distribution of product characteristics according to the following major categories: developers, subject matter specificity, target audience, grade level specificity, target outcomes for teachers, target outcomes for students, product availability, the nature of the training situation (including whether materials must be supplied by the user), and the availability of field test results. The extent of agreement among analysts in describing products was tested on a sample of six products. The range of values was 3 (maximum disagreement) to 6 (maximum agreement). The overall mean agreement on the 117 descriptors was 5.7. For 45 percent of the products, the developers responded to a request for verification of the description of their products.

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TEACHER TRAINING PRODUCTS: THE STATE OF THE FIELD

SCRDT Program on Teaching Effectiveness

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The SCRDT Program on Teaching Effectiveness (PTE) began in 1968 to develop a Model (or prototype) Teacher Training System. The teacher training products comprising the System were to be developed entirely within the Program. During 1973, after examining the field of teacher training product development, it was concluded that the Program should not develop all, or even most, of the components of the System. Most of the products that might be incorporated into the System already existed or would have to be developed elsewhere.

One of the projects within PTE was to identify, describe, and insofar as was possible, evaluate teacher training products already available. This task is comparable to the review of the literature traditionally performed before research is undertaken. In many cases the sources of information used in this project are secondary sources, rather than the products themselves. The use of secondary sources was necessary for the first screening of the hundreds of teacher training products identified. This screening will be used as the basis for selecting a smaller number of products to be examined at first hand as candidates for inclusion in the Systematic Teacher Training Model (STTM).[1]

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[1]The major goal of PTE was originally labeled a "Model Teacher Training System." That terminology, however, frequently seemed to require an explanation that the term "model" was intended to connote not an "ideal" but rather a "prototype." The intended meaning seems to be better captured by the present terminology for the Program's goal--"Systematic Teacher Training Model." The term "systematic" implies an organization of integrated components, each designed to serve its function and support other components. "Model" signifies an original type, form, or instance of the way in which teacher training products can be integrated into a system, rather than a perfect and finished system.

The work of the project on collation and analysis of non-SCRDT teacher training products entailed the following steps:

1. Seeking relevant products and literature.
2. Analyzing the features of the relevant literature and products.
3. Classifying the features and status of the product or literature according to whether the feature is presently usable, usable with minor modifications, usable with major modifications, or unusable, in one of the basic domains of teacher behavior (cognitive, social-emotional, organizational).
4. Determining the degree to which products for the STTM can be obtained by (a) using products already available from other developers, (b) modifying products already available from other developers, (c) continuing the development of products already being developed at SCRDT, (d) initiating the development of necessary products not presently being developed anywhere.

A Flexible Catalog

The present monograph sets forth the present state of the field of teacher training products in the United States in the basic domains of teacher behavior. It provides descriptions, categorizations, and judgmental (i.e., nonempirical) evaluations of the data available on the teacher training products and will serve PTE as a basis for decisions concerning the adoption, modification, or development of teacher training products. It should also be useful to other research and development workers and teacher educators interested in what is available in the field of teacher training.

The staff intended to resolve the issue of redundancy in product development in a way that would serve not only the Program on Teaching Effectiveness but other persons interested in teacher training products for a variety of reasons. Other developers, workers in teacher education programs (both preservice and in-service), and funding agencies should have access to the results of the collation and analysis. A catalog of this information would minimize undesirable redundancy not only at SCRDT but throughout the field of teacher education. Further, as this project

developed, it became apparent that it would be possible to prepare a flexible catalog that could be updated as new products appeared.

The flexible catalog was to be realized through the use of a computerized storage and retrieval system. The computerization would make possible the tabulation and analysis of the frequencies of teacher training products along many dimensions, and also the cross-tabulation of products on more than one dimension at a time. It would also make possible the "retrieval" of lists of teacher training products according to any of the many kinds of specifications that were built into the description process.

A Definition of Teacher Training Products

For the purposes of the collation, a definition of "teacher training product" was necessary--one that would guide the search in appropriate ways. Because of limited time and resources, it was decided to exclude much of the vast field of materials used in the education of teachers, such as textbooks, films, research literature, books of readings, and the like. The basis for the major distinction employed in defining teacher training products was between "knowing that" and "knowing how." This distinction has been elaborated by Ryle (1949).

A simple illustration may clarify the distinction: the difference between knowing how to swim and knowing the physical principles (Archimedes' and Newton's laws) that govern swimming. Teaching a nonswimmer only the governing physical principles will not enable him to swim--he needs to know how to bring about the conditions that will facilitate learning by his students. It is not sufficient merely to know that learning takes place in certain ways as a function of certain conditions.

Teacher training products are defined as materials intended and designed to equip teachers with skills, or "knowledge of how to do certain things," rather than knowledge that certain things are true. Accordingly, in our definition, teacher training products must require that the trainee be active, in the sense of performing, practicing, or trying out the skills to be acquired. Such a requirement rules out training materials that merely ask the trainee to receive information

through reading, listening, or viewing. Thus, teacher training products require the trainee to go beyond receiving information to some kind of action based on the information. Such activities are likely to promote desired skill performance and behavior changes and, incidentally, to produce data useful in a formative evaluation of the Systematic Teacher Training Model.

The steps taken toward the goals of the project were as follows: (a) product identification; (b) product description; (c) product tabulation and analysis; and (d) evaluation and interpretation of the current state of the field of teacher training product development.

Product Identification

Because much work had already been done elsewhere in cataloging teacher training products, the project was able to use a number of publications already in existence:

1. Research in Education, Volumes 1-8, issued by the Educational Resources Information Center (ERIC).
2. Resources for Performance-Based Education, edited by W. Robert Houston, et al. (Albany, N. Y.: State University of New York, State Education Department, 1973.)
3. A Source Book of Elementary Curricula Programs and Projects, edited by Samuel N. Henrie, and others. (San Francisco: Far West Laboratory for Educational Research and Development, 1972.)
4. Materials for Modules: A Classification of Competency-Oriented Tools for Teacher Education, edited by Bruce Joyce, Greta Morine, Marsha Weil, and Rhoada Wald. (Washington, D. C.: U. S. Office of Education, 1971.)
5. Florida Center for Teacher Training Materials Catalog: FCTTM's Annotated Catalog of Teacher Training Materials, edited by William J. Spino, Andrea G. Berger, Marian J. Tonjes, and Alice R. B. Abbott. (Coral Gables, Fla.: Florida Center for Teacher Training Materials, University of Miami, 1972.)

6. CEDaR Catalog of Selected Educational Research and Development Programs and Products (3rd ed.), Volumes 1 and 2, compiled by the CEDaR Information Office. (Denver, Colo.: CEDaR Information Office, 1972.)
7. Learning Directory, 1970-1971, Volumes 1-8, compiled by Westinghouse Learning Corporation. (New York, N. Y.: Westinghouse Learning Corporation, 1970.)
8. Learning Directory 1972-1973, Supplement, compiled by Westinghouse Learning Corporation. (New York, N. Y.: Westinghouse Learning Corporation, 1972.)

Because a teacher training product was required to actively involve the trainee in skill acquisition, many entries in these catalogs were excluded from our analysis. Further, these source catalogs overlapped substantially. For example, the Resources for Performance-Based Education included 50 to 75 percent of what was listed in the seven remaining source catalogs. In turn, these seven catalogs duplicated, on the average, between 25 and 50 percent of one another's entries. Nevertheless, the eight catalogs together provided what was unavailable until relatively recently--a way of identifying and classifying teacher training products on a large scale. Further, most of the catalogs went beyond merely identifying products to provide the user with information about each product's objectives, price, specific characteristics, and source of supply.

But the catalogs shared certain weaknesses. Typically they did not provide information on field tests of product effectiveness. When they did, the information was often written in the style of an advertisement rather than as an objective presentation of information. For example, a statement concerning effectiveness might say, "This product has been shown to be effective in training teachers." This shortcoming in the catalogs reflects not the work of the catalogers, but rather the lack, thus far, of substantial field testing. The catalogs were also deficient, with a partial exception of Resources for Performance-Based Education, in not cross-indexing products by title, supplier, developer, and product objectives.

In addition to the catalogs listed above, the main device for identifying products was a mail campaign. A letter (Appendix A) describing PTE's identification and collation effort, and including PTE's definition of a teacher training product, was sent to more than 1,200 public and private universities and colleges, school districts, private research institutes, and federal research and development centers and laboratories. The major sources of the address list were (a) the Directory of Educational Information Centers (Washington, D. C.: U. S. Department of Health, Education, and Welfare, Office of Education Document OE-12042); (b) the Directory of the American Association of Colleges for Teacher Education (Washington, D. C.: The Association, 1970); (c) the Educator's Purchasing Guide: Media and Methods (Philadelphia: North America Publishing Company, 1972); and (d) Educator's World (Philadelphia: North America Publishing Company, 1972). Approximately 80 percent of the letters were mailed to sources listed in (a) and (b) above. Approximately 10 percent of the addressees responded. These responses led to the identification of approximately 100 products not in any of the catalogs.

Finally, the effort to identify products was pursued through an advertisement (Appendix B) placed in the Educational Researcher--the newsletter of the American Educational Research Association--for July 1973. This advertisement yielded no additional product identifications.

Product Description

To describe the important features of teacher training products, a Teacher Training Product Description Form was developed (Appendix C). In selecting categories of descriptive information to comprise the form, the guiding consideration was whether the information would be useful in deciding whether a product should be included, either in its original form or in a revised form, in the planned Systematic Teacher Training Model. The staff proposed categories of descriptors that answered questions such as the following:

--Is the training product general or specific in relation to subject matter and grade-level?

--What is the cost of the product?

--What equipment must be provided by the user?

--Are field test data available and, if so, what do the field test results indicate about the product's effectiveness?

In addition, several product descriptors from the existing catalogs of teacher training products were added to the form. To generate the descriptors for categories of teacher behavior at which the various products were aimed, an analysis of teacher behaviors was performed. Although many such analyses have been made in the textbook and theoretical literature on teaching, none provided exactly the kind of analysis that seemed most useful for our description of teacher training products. Although our list of teacher behaviors (which appears on the form Appendix C) could, of course, be improved in many respects, it is offered as a useful approximation to a list of teacher behavior categories suitable for classifying teacher training products.

Of the various categories of descriptors on the Teacher Training Product Description Form, the most important for the purposes of constructing a Systematic Teacher Training Model is the category of "target outcomes for teachers." Improved understanding of these outcomes is being sought empirically, through a factor analysis of the intercorrelations among them as they were used by the analysts in describing the hundreds of products included in the existing compilation.

The PTE Teacher Training Product Description Form provided for the following types of descriptive information:

--Product identification information, i.e., the complete product title, the developer's and supplier's name and address, and the source of reference information.

--The subject matter specificity of the product, i.e., ten subject matter categories, with an eleventh category for indicating that the product had no subject matter specificity.

--The target audience, i.e., six role categories, such as "pre-service trainees," "in-service teachers," and "administrators."

--Grade-level specificity, i.e., seven grade-level categories ranging from "early childhood" to "college teachers," with a category for "teachers in general."

--Target outcomes for teachers resulting from training with the product, i.e., 11 planning skills, 25 presentation skills, 8 skills in the unplanned aspects of teacher behavior, 12 assessment and evaluation skills, 9 effective outcomes of teacher training, such as "attitudes toward teaching" and "teacher self-concept," and 9 "other skills" of teachers which did not fit into the foregoing categories.

--Target outcomes for students, i.e., 5 cognitive and 11 social-emotional student outcomes.

--Product availability information, i.e., information on when the product would be available and its price.

--The nature of the training situation, i.e., information about the materials provided with the product; materials and equipment to be provided by the product's user; the amount of time and number of people required to administer training with the product; the smallest and largest numbers of trainees that could use the product at one time; and the nature of the practice required during training (paper and pencil exercises, teaching students, etc.).

--Phase of teaching in which the specific skills learned in training would be used, i.e., three categories consisting of "prior to interaction with students," "during interaction with students," and "after interaction with students."

--References describing field test results.

--Additional descriptive or evaluative comments, as made by the analysts.

Using the information in the various catalogs, the project staff filled out the Product Description Form as completely as possible for each of the products identified. A copy of the filled-out form was then

mailed to the product developer for verification, i.e., for confirmation that the product did exist and for corrections and additions to the information on the form. Approximately 45 percent of the product descriptions were verified in this way by the product developer. At the time of this analysis, the developers of the remaining 55 percent of the products had not responded to our request for verification. Most of the changes made by the developers were minor. Thus it seemed that the product descriptions were for the most part correct and complete.

Since some of the descriptions of products in the catalog sources were too brief for the purposes of the Program, criteria were developed to determine whether or not a product description was complete enough to justify its being entered in the catalog. Since a major goal of the project was to characterize the nature of the field of teacher training products, errors of omission stemming from incomplete descriptions of products would contribute to inaccuracies in generating descriptive profiles from the data. The criteria for entry into the catalog were as follows:

(a) If a product description form had been verified by the product's developer, it was considered that errors of omission did not exist. Such products qualified unconditionally for entry.

(b) If a product had not been verified by its developer, then the following information had to be included on its initial product description form before it could be considered for entry:

  (1) title of the product
  (2) name of either developer or supplier
  (3) subject matter specificity
  (4) target audience
  (5) grade level

Additionally, a subjective judgment was made regarding the completeness of the information in the "target teacher outcomes" section of the form.

Of the 765 teacher training products that satisfied the definition, 657 were described with sufficient completeness to be entered in the catalog. The analysis which follows is therefore based on a total of 657 teacher training products.

To insure a high degree of reliability of the product descriptions, it was originally intended to have two analysts independently describe each training product. This plan proved not to be feasible because almost 800 products were identified. The use of two analysts for each product proved to be impossible within the Program's resources. Each product was therefore described by only one analyst.

To estimate the degree of agreement between analysts in describing products, a study was conducted with a sample of six training products described by each of the six analysts participating in the work unit (see Appendix D). This study of agreement between analysts led to the formulation of a set of guidelines for using the Product Description Form which were followed thereafter. These guidelines (Appendix E) provided detailed directions and definitions of product descriptors and were intended to improve the reliability of the use of the Product Description Form above the previous level, which had already been considered to be reasonably adequate.

Tabulation and Analysis

For the purposes of tabulation, analysis, and cataloging, the product description information was transferred from description forms to a file in the Stanford Public Information Retrieval System (SPIRES), a generalized computer information storage and retrieval system. SPIRES allows a user to create, update, maintain, interrogate, and display stored information. An integral part of the SPIRES system is the file definition, which establishes the fundamental structure of a file. The file definition indicates what kinds of data elements the data records will contain; what the record formats are; how the records are linked; how the data elements are organized within records; and what rules are followed in processing the data record elements during input, output, and searching. The file definition for descriptions of teacher training products defines a data record as consisting of elements or product descriptors for each teacher training product.

To enter the information in SPIRES, the product description information was first transferred from the description forms to IBM coding

sheets. The data were then keypunched onto standard 80-column punch cards, entered in the computer, and stored on magnetic tape.

Several types of analyses were performed on the data records stored in SPIRES. First, listings of specific products and product descriptors were obtained by using the search capabilities of the SPIRES system. Second, the system was used to generate "0/1" matrices which represented the pattern of descriptors that had been checked for each product. Third, the matrices were entered as input to an SPSS (Statistical Package for the Social Sciences) program which computed frequencies and cross-tabulations for product descriptors. A set of 2 x 2 cross-tabulations on product descriptors resulted in a matrix of phi coefficients of correlation. The matrix was then used to perform the factor analyses, the results of which will be reported later.

Frequencies of Product Characteristics

In this section, the frequencies of products having various characteristics are described and discussed under the following heads: developers, subject matter specificity, target audience, grade level specificity, target outcomes for teachers and for students, availability, nature of the training situation, expected use of skills, and field test results. The frequencies throw light on the nature of the concerns and the efforts of the developers of the hundreds of teacher training products thus far developed in the United States and identified by this project. The frequencies were calculated from the Product Description Forms filled out by the project analysts.

Developers

The 554 products described in the catalog for which the developers have been identified were produced by 265 different developers. The developers included individuals, teams, and organizations in university, school system, government, and business contexts. The largest number of products credited to a single developer is 37, developed by Weber State College (Ogden, Utah). Most developers are credited with only a single product.

The support context in which product developers worked is presented in Table 1. Universities far exceeded any other institutions as sites in which product development took place (N = 352). R&D Centers and Laboratories produced 14.2 percent (N = 93) of the products, school systems developed only 7 percent (N = 46), and private organizations 3.5 percent (N = 23). The product descriptions in the "unknown" category had no information on the context in which they were developed.

TABLE 1

Support Contexts in Which Teacher Training Products Are Developed

Support Context	N	%
Universities	352	53.6
R&D Centers and Laboratories	93	14.2
School Systems	46	7.0
Private Organizations	23	3.5
Unknown	143	21.8

School systems presumably could use a large number of training products in their in-service programs, yet they produce very few. Presumably, school systems do not allocate the resources necessary to develop products. (An exception is the Florida State Department of Education, which is listed as the developer of 31 products.) Private organizations are listed as developer of only 23 products in our sample. This small number may reflect the frame of reference of the source catalogs, or it may indicate that private organizations prefer to produce and supply teacher training products rather than to design and develop them. Products are developed, for the most part, in university settings where representative field testing is difficult and expensive. This means that R&D Centers and Laboratories with their concentration of resources in this field must provide the leadership in testing products experimentally and combining products into training systems.

Subject Matter Specificity

The category of subject matter specificity deals with whether the teacher training product is aimed at teachers of a particular subject matter. For each of the major subject matter areas, the analyst could also indicate the "topic within subject matter." For example, for the subject matter of "foreign languages," the analyst could indicate whether the product dealt with a particular language (French, German, etc.) or a particular language skill (reading, speaking, etc.). As the frequencies in Table 2 indicate, no subject matter specificity was indicated for 435, or 66 percent, of the 657 products described. The four most frequently specified subject matters were reading (N = 57), social studies (N = 39), mathematics (N = 36), and English language skills (N = 33). Considerably fewer products were aimed at the fields of science (N = 21), music (N = 12), art (N = 6), foreign languages (N = 5), and bilingual or multicultural education (N = 13).[2] No product was aimed specifically at teachers of physical education.

These results indicate that, by and large, the developers of teacher training products regard teaching as an activity that can be formulated in terms that are not specific to a given subject matter. The issue of whether teaching can be considered in general terms or must always be considered in ways specific to a given subject matter has been actively debated among theoreticians and practitioners in teacher education for decades (cf. Bantock, 1961, and Martin, 1963). The present results indicate that a substantial majority of the teacher training products thus far developed reflect the generalist position. Whether this position is valid cannot be determined by these findings. But it is clear that in the judgment of the developers of teacher training products--persons who must be considered to have a better than average level of understanding of the teaching process--it makes sense to attempt to change or improve teacher behavior without reference to a specific subject matter area.

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[2]This descriptor was available for use only with the 359 products taken from the Resources for Performance-Based Teacher Education catalog (54 percent of the total number of products analyzed).

TABLE 2

Frequency and Percentage of Products in Category 6: Subject Matter Specificity

Descriptor	N	%
None	435	66.2
Reading	57	8.7
Foreign Language	7	1.1
Other Language Skills (English)	33	5.0
Mathematics	36	5.5
Science	21	3.2
Social Studies	39	5.9
Physical Education	0	.0
Music	12	1.8
Art	6	.9
Bilingual or Multicultural*	13	2.0
Others	19	2.9

Note: The descriptors in this table and others are listed in the order used on the Product Description Form (Appendix C).

*Frequencies and percentages are based on N = 657, except where marked by an asterisk. The asterisk in this table and others indicates that the descriptor was available for use only with the 359 products taken from the Resources for Performance-Based Teacher Education (RFPBE) catalog. Hereafter this limitation will be indicated by the footnote "RFPBE only."

Target Audience

The category of "target audience" refers to the kinds of trainees at whom the teacher training product is aimed. As the frequencies in Table 3 indicate, the vast majority (597, or 91 percent) of the products were intended to be used by preservice trainees, i.e., persons preparing to become teachers. An almost equally large percentage of the products were intended to be used by in-service teachers, i.e., persons already working as teachers. The concentration of products in these two areas is not surprising, since to qualify as a teacher training product, either

TABLE 3

Frequency and Percentage of Products in Category 7: Target Audience--Role[a]

Descriptor	N	%
Preservice Teachers	597	90.9
In-service Teachers	547	83.3
Administrators	69	10.5
Teacher Aides	64	9.7
Supervisors	61	9.3
Teacher Educators	56	8.5
Others	22	3.3

[a]The descriptors in this category are not mutually exclusive.

"preservice trainees" or "in-service teachers" must have been checked. (The analysts checked as many of the descriptors in this category as applied to each product; hence, the totals are greater than the number of products described.)

Although the catalogs and identification effort were intended to be concerned entirely with teacher training products, about 10 percent of the products were also intended to be suitable for the training of administrators, supervisors, and teacher educators, and about an equal proportion were intended to be useful for teacher aides, i.e., paraprofessional workers who provide assistance alongside professionally trained teachers.

Was a sharp distinction made between preservice trainees and in-service teachers? A cross-tabulation determined the number of products that were aimed at both of these groups. As shown in Table 4, it indicated that, of the 597 products intended for in-service teachers, 505 were designed to be usable by both. This figure indicates that the distinction between preservice and in-service trainees is not sharply maintained. Apparently, products described as appropriate for persons who have never yet taught are also likely to be seen as appropriate for certificated teachers. Yet the conditions under which training must take

TABLE 4

Frequency and Percentage of Products Concurrently in Categories 7.1 and 7.2: Role--Preservice Trainees and In-service Teachers

			In-service Teachers: No	In-service Teachers: Yes	Total
Preservice Trainees	Yes	N	92	505	597
		%	14.0	76.9	90.9
	No	N	18	42	60
		%	2.7	6.4	9.1
	Total	N	110	546	657
		%	16.7	83.3	100.0

place probably are different for these two groups. One kind of training is usually located in a college or university, and the other in a school. Nonetheless, the teacher training products are by and large intended to be useful in both kinds of settings.

Grade Level Specificity

Grade level is another major dimension, comparable to subject matter, by which teaching is often considered to need differentiation. Teachers of senior high school students are often regarded as requiring skills that are different, to a considerable degree, from those needed by teachers in the early grades of the elementary school. Yet, as Table 5 shows, nearly 50 percent (N = 313) of the products were described as useful for teachers in general, without regard to grade level. Products useful for training elementary school teachers were next most frequent (N = 288). The products for secondary school teachers (N = 119) and junior high school teachers (N = 112) were only about half as frequent. Very few of the products were designed to be used by junior college teachers (N = 9) or college teachers (N = 13). Only a few products (N = 18) were designed for use by "early childhood" teachers.

TABLE 5

Frequency and Percentage of Products in Category 8: Target Audience--Grade Level[a]

Descriptor	N	%
Teachers in General	313	47.6
Early Childhood*	22	3.3
Elementary	288	43.8
Junior High	112	17.0
Secondary	119	18.1
Junior College	9	1.4
College	13	2.0
Others	18	2.7

[a]The descriptors in this category are not mutually exclusive.

*RFPBE only.

Do product developers distinguish between junior nigh school teachers and secondary school teachers? As Table 6 shows, a cross-tabulation of the products intended for one or both of these categories indicates that of the 119 products intended for secondary school teachers and the 112 products designed for junior high school teachers, 54 were intended to be useful to both. The distinction between junior and senior high school teaching seems to be maintained in about half the cases.

To what extent is the distinction between elementary and secondary school teaching maintained in the development of teacher training products? As Table 7 shows, of the 288 products intended for elementary school teachers, and the 119 products intended for secondary school teachers, 79 were intended to be useful to both. These cross-tabulations indicate that, in the view of the developers, a distinction is frequently made between teacher training products according to whether the teacher is going to work with elementary or secondary school students.

TABLE 6

Frequency and Percentage of Products Concurrently in Categories 8.3 and 8.4: Grade Level--Junior High School Teachers and Secondary School Teachers

			Junior High School Teachers		
			No	Yes	Total
Secondary School Teachers	Yes	N	65	54	119
		%	9.9	8.2	18.1
	No	N	480	58	538
		%	73.1	8.8	81.9
	Total	N	545	112	657
		%	83.0	17.0	100

TABLE 7

Frequency and Percentage of Products Concurrently in Categories 8.2 and 8.4: Grade Level--Elementary School Teachers and Secondary School Teachers

			Secondary School Teachers		
			No	Yes	Total
Elementary School Teachers	Yes	N	209	79	288
		%	31.8	12.0	43.8
	No	N	329	40	369
		%	50.1	6.1	56.2
	Total	N	538	119	657
		%	81.9	18.1	100.0

Target Outcomes for Teachers

The category of "target outcomes for teachers"--largely skills--refers to the kinds of teacher behavior that the training product is intended to introduce or improve. Here we become concerned with one of the most difficult problems of research and development in teaching--the problem of developing dimensions of teacher behavior that are useful and make sense logically, psychologically, and educationally. Many attempts have been made to develop such categories. The 14-volume compilation Mirrors for Behavior (Simon & Boyer, Eds., 1967, 1970 a, 1970 b), contains more than 100 instruments developed for the observation and analysis of teacher behavior. Efforts to dimensionalize teacher behavior have also been based on facet theory (Bar-On & Perlberg, 1972; Foa, 1965; Morrison, 1972). Indeed, the number of dimensions of teacher behavior, potentially and actually, has been considered large enough to merit their storage and retrieval by computer (Sobol, 1971).

For the purposes of the present work, the following four categories of teacher skills were developed: (a) planning skills, (b) presentation skills, (c) skills in the unplanned aspects of teacher behavior, and (d) assessment and evaluation skills. Within each of these categories, skills were listed at a level of specificity considered appropriate to that used by the developers of the products. Each of these skills could, of course, be broken down into a considerable number of subskills. And, in many instances, the skills listed could be combined into more general and inclusive categories. The level of specificity of descriptors in the Product Description Form was intended to promote comprehensive description of teacher training products and to permit translation of the developers' descriptions into our terminology.

Planning skills. The category of planning skills includes skills that teachers need to use before they meet their students. As shown in Table 8, these skills refer to what teachers do about instructional materials--selecting, obtaining, or preparing them--and how they make major decisions like choosing instructional strategies and arranging the instructional environment. The skill of "evaluating instruction and instructional design" refers to what the teacher might do after having

taught a class for a few weeks; he might evaluate the effectiveness of his instruction and reconsider his design or plan. This skill would represent a later step in dealing with the problem for which another kind of skill is also needed--the skill of "selecting instructional process strategies."

Of these planning skills, the one at which products were most frequently aimed was "selecting instructional process strategies" (N = 315). The next most frequent target of the teacher training products was "preparing instructional materials" (N = 204). Such skills can range from the simple, as in preparing a chart or a mimeographed handout, to the complex, as in preparing sound films or instructional games. Inspection of several of the descriptions of products intended to teach "preparing instructional materials" indicates that they also include products addressing activities such as designing homework assignments, developing an art activities file, preparing materials relevant to fostering creativity, and designing student knowledge--competency units.

Next most frequent as a target was the skill of "selecting instructional materials" (N = 195) for teaching a given subject at a given grade level. Because of the wealth of materials produced for teachers by American publishers, the competition for the teacher's attention is intense. These teacher training products are intended to help teachers find their way to the products that are appropriate for their students at a particular level of development in ability and interests.

The skill of "arranging the instructional environment" was the target of 101 products. What do such products deal with? Examples of such products are those entitled "Open Concept Classroom Organization," "Non-Instructional Management: A Self-Directed Learning Program," "Learning Centers," and "Preparing the Physical Environment for Learning." These products provide teachers with help in establishing and operating an open classroom; designing, setting up, and operating a classroom that has three distinct learning centers; and identifying elements of the physical environment which might be altered to improve the climate for learning.

TABLE 8

Frequency and Percentage of Products in Category 9: Target Teacher Outcomes--Planning Skills[a]

Descriptor	N	%
Selecting Instructional Materials	195	29.7
Obtaining Instructional Materials	67	10.2
Preparing Instructional Materials	204	31.1
Interaction with Teachers in Planning	48	7.3
Teacher-Pupil Planning	52	7.9
Selecting Instructional Process Strategies	315	47.9
Arranging the Instructional Environment	101	15.4
Selecting Behavior Modification Strategies	47	7.2
Organizing Students*	21	3.2
Developing Procedures and Routines*	26	4.0
Evaluating Instruction and Instructional Design*	40	6.1
Others	44	6.7

[a]The descriptors in this category are not mutually exclusive.

*RFPBE only.

Only 21 products were concerned with the skill of "organizing students" (RFPBE only). Yet educators have long considered the social organization of the classroom to be significant in determining student activity and learning. Some recent writers consider the degree to which a teacher breaks a class up into small groups to be an important factor in "engaging" students in learning activities (Knowles, 1973; Sears et al., 1972). Thew (1972) developed microteahing and workshop experiences intended to help teacher trainees use a classroom-social organization system of analyzing teacher behavior. Apparently, the relatively

little attention paid to this planning skill indicates that product developers in American teacher education either have not yet fully grasped the importance of this conception or have been unable to develop effective training materials in this area.

"Developing procedures and routines" is another kind of planning skill that has received relatively little attention from product developers (N = 26; RFPBE only). Some writers (e.g., Gage, 1972) have emphasized the desirability of equipping teachers with the "tools of the trade," or procedures and routines for doing their job. Such routines would make it unnecessary for teachers to follow a single, well-established "rut" or exhibit a level of creativity not to be expected of the millions of persons required as teachers. That is, a large number of "procedures and routines" would allow teachers to be flexible and adaptive, in a way analogous to that of the improvising musician whose technical skill frees him to play many variations on a theme. Apparently, however, if we judge from the relatively small number of products aimed at this kind of planning skill, product developers have not yet become highly active in this area.

Presentation skills. "Presentation skills" include presenting facts, concepts, principles, problem-solving procedures, and the like, to students. These are the skills that one typically considers to be part of the "classroom recitation" process--listening, explaining, questioning, giving examples, pacing (adjusting the rate of presenting new materials), introducing, sequencing, and so on. As shown in Table 9, a total of 25 such presentation skills were considered in the analysis of the products. (A 26th category was provided to allow specifying "other" presentation skills.)

Of these, the one with which the most products were concerned was "motivating" (N = 125). The second most frequently dealt with was "reinforcing" (N = 114). The high frequencies for motivation may reflect the high generality of the concepts of motivation, thus making them useful for describing a wide variety of products. "Reinforcing" is often considered to be an aspect of motivating. To what degree were products aimed at one of these skills also aimed at the other? A cross-tabulation,

TABLE 9

Frequency and Percentage of Products in Category 10: Target Teacher Outcomes--Presentation Skills[a]

Descriptor	N	%
Listening	54	8.2
Explaining	74	11.3
Questioning	85	12.9
Giving Examples	47	7.2
Pacing	30	4.6
Introducing	54	8.2
Sequencing	54	8.2
Summarizing	37	5.6
Individualizing Instruction	100	15.2
Emphasing	19	2.9
Stimulating	58	8.8
Using Groups	95	14.5
Gestural Behavior	28	4.3
Reviewing	21	3.2
Motivating	125	19.0
Reinforcing	114	17.4
Eliciting Feedback	75	11.4
Using Games	31	4.7
Managing Field Trips	6	0.9
Use of AV Equipment	40	6.1
Giving Homework	9	1.4
Preventing Disciplinary Problems	38	5.8
Substitute Teaching	2	0.3
Structuring, Establishing Rapport, Providing Atmosphere*	40	6.1
Utilizing Deductive, Inductive Thinking, or Problem Solving*	37	5.6
Others	67	10.2

[a]The descriptors in this category are not mutually exclusive.

*RFPBE only.

shown in Table 10, indicates that of the 125 products considered to be concerned with motivating, and of the 114 products aimed at reinforcing skills, 95 were considered to be intended to improve both. Apparently, in the intentions of developers and in the view of the product anaylsts, the skills of motivating and reinforcing are frequently addressed by the same product.

The skill of "using groups" was next most frequently addressed by the products reviewed (N = 95). How does this skill differ from that of "organizing students" considered above under the heading of "planning skills?" The descriptions of products which deal with one type of skill but not the other suggest that products which teach the trainee to "organize" students and exclude "using groups" tend to focus on open classroom environments and team teaching. On the other hand, products concerned only with "using groups" seem to deal with individualizing instruction and the dynamics of classroom groups. A cross-tabulation, shown in Table 11, indicates that of the 95 products aimed at "using groups" and the 21 products aimed at "organizing students" only seven were considered to be helpful in both.

TABLE 10

Frequency and Percentage of Products Concurrently in Categories 10.15 and 10.16: Presentation Skills--Motivating and Reinforcing

			Reinforcing: No	Reinforcing: Yes	Total
Motivating	Yes	N	30	95	125
		%	4.6	14.5	19.0
	No	N	513	19	532
		%	78.1	2.9	81.0
	Total	N	543	114	657
		%	82.6	17.4	100.0

TABLE 11

Frequency and Percentage of Products Concurrently in Categories 9.10 and 12.12: Planning Skills (Organizing Students) and Presentation Skills (Using Groups)

			Using Groups: No	Using Groups: Yes	Total
Organizing Students	Yes	N	14	7	21
		%	2.1	1.1	3.2
	No	N	548	88	636
		%	83.4	13.4	96.8
	Total	N	562	95	657
		%	85.5	14.5	100.0

The reemphasis since about 1963 on the value of "individualizing instruction" is reflected in the relatively large number of products (N = 100) aimed at this skill. The large number may also reflect the relative generality, or global character, of the concept of individualized instruction. It can apply to matters as specific as diagnosing of entry behavior and providing special homework assignments. Or it can refer to approaches as all-embracing as the "Individually Prescribed Instruction" developed by the Learning Research and Development Center at the University of Pittsburgh. Examination of the products considered to be aimed at this skill indicates that the more general of these skills were most frequently the target.

Of the relatively specific kinds of teaching skills, the ones most frequently addressed by the products were "introducing" (N = 54), "questioning" (N = 85), "eliciting feedback" (N = 75), and "explaining" (N = 74). This set of skills comprises the activities often found occurring in the typical sequence of events in the classroom (Bellack et al., 1966; Hoetker & Ahlbrand, 1969). That is, it has often been found on the basis of analyses of classroom observations, whether recorded or live, that teachers repeatedly go through a cycle of (a) structuring (i.e.,

explaining the basis or limits of a forthcoming sequence of discourse), (b) soliciting (i.e., questioning or inviting student response), and then, after a student has responded, (c) reacting to the student (saying "right," or "wrong," or otherwise commenting upon the student's response). That product developers have fairly frequently tried to provide teachers with help in questioning, eliciting feedback, and explaining, may reflect their acceptance of an analytic approach to teacher training--an approach based on an analysis of the overall activity or process of teaching into a number of relatively specific skills.

One question that arises from these analyses is that of the difference between "questioning" and "eliciting feedback." Are these different skills? How do they differ? A cross-tabulation, shown in Table 12, indicates that of the 85 products concerned with questioning skills, and of the 75 products concerned with eliciting feedback, 42 were aimed at both. Apparently, products aimed at one of these skills deal simultaneously with the other about half the time.

TABLE 12

Frequency and Percentage of Products Concurrently in Categories 10.3 and 10.17: Presentation Skills--Questioning and Eliciting Feedback

			Eliciting Feedback: No	Yes	Total
Questioning	Yes	N	43	42	85
		%	6.5	6.4	12.9
	No	N	539	33	572
		%	82.0	5.0	87.1
	Total	N	582	75	657
		%	88.6	11.4	100.0

One product aimed at questioning but not at eliciting feedback is described by its developer as a series of three microteaching experiences;

the first focuses on questioning techniques, the second deals with introducing new materials, developing skills related to leading a discussion, and/or "demonstrating appropriate teacher behaviors" (RFPBE), and the third involves "small group problem solving requiring demonstration of a broad synthesis of the techniques and competencies learned in the course" (RFPBE); the product is "Microteaching for Education 301."

Similarly, a product considered to be aimed at eliciting feedback but not at questioning is described as being focused on increasing the participant's awareness of "the many different instructional procedures that can be used to yield feedback from the learner..., the many different feedback messages the learner can send to the teacher," and on providing the participant with "an opportunity to utilize his own feedback in the completion of a task" (RFPBE). The product title is "Focus on Feedback."

The one skill that appears to embody the heart of teaching is "explaining." In this activity a teacher approaches what laymen, students, and professional educators alike often consider to be the quintessence of teaching. Of the 74 products considered to be aimed at this skill, only eight are sharply focused on it. The remainder treat explaining only incidentally. Among products sharply focused on explaining we find such products as "Higher Level Thinking Abilities" in which "teachers learn to use teaching strategies that increase the students' abilities to solve problems by categorizing facts, drawing generalizations from those facts, and applying them to unknown situations...students learn whys and hows, rather than memorize facts, learn to use sound judgment, and learn to assimilate large bodies of knowledge" (CEDaR, 3rd ed., p. 221). Among products which involve explaining only incidentally we find products such as "Responsive Follow Through Program" in which training focuses on "responding to children in a manner that enhances the development of a healthy self-concept and the intellect" (CEDaR, 3rd ed., p. 442).

In most conceptions of performance-based teacher education, presentation skills must play a large part. To what extent have the developers treated these skills as generic? Table 13 indicates that of the 369

products considered to be aimed at presentation skills, 161 were considered to be appropriate for "teachers in general," without regard to grade level. But 171 were considered to be intended for elementary school teachers, 71 were intended for junior high school teachers, and 80 for senior high school teachers.

Similarly, Table 14 shows that of these 369 products aimed at presentation skills, 249 were considered to be nonspecific with respect to subject matter, while 27 were intended for teachers of reading, 21 for teachers of social studies, 24 for teachers of mathematics, and 16 for teachers of science.

To demonstrate the kind of data bank search process which can be used in identifying teacher training products for specialized needs, we used the computer to retrieve the descriptions of all products aimed at the presentation skill of "explaining" in mathematics or science, or both. The search provided descriptions of nine products. Three addressed explaining in mathematics (e.g., Minicourse 5: "Individualizing Instruction in Mathematics"), four addressed explaining in science (e.g., "Preparation for Individualized Science"), and two were concerned with explaining in both mathematics and science (e.g., "Teaching Competencies: Generic Teaching Skills").

TABLE 13

Frequency and Percentage of Products Concurrently in Categories 10 and 8: Target Teacher Outcomes--Presentation Skills and Grade Level

Grade Level	N	%
Teachers in General	161	24.5
Elementary School Teachers	171	26.0
Junior High School Teachers	71	10.8
Secondary School Teachers	80	12.2
Total	483	

TABLE 14

Frequency and Percentage of Products Concurrently in Categories 10 and 6: Target Teacher Outcomes--Presentation Skills and Subject Matter Specificity

Subject Matter Specificity	N	%
No subject-matter specificity	249	37.9
Reading	27	4.1
Social Studies	21	3.2
Mathematics	24	3.7
Science	16	2.4
Total	337	

Skills in the unplanned aspects of teacher behavior. This category deals primarily with skills involved in interacting with others. By definition, interaction cannot be completely planned. Interactive behavior is influenced by the behavior of the other person or persons with whom one is interacting. Table 15 shows the number of products that were considered to be aimed at several kinds of "unplanned" or interactive teacher behavior. As might be expected, the largest number of products was aimed at informal interaction with students (N = 93). Next most frequent was a kind of response also intended for students, namely, "providing feedback" (N = 82). "Managing student (problem) behavior" (N = 45), "interaction with other teachers" (N = 45), and "use of student ideas" (N = 43) were the next most frequently occurring kinds of skill at which the products were aimed. The fewest products were concerned with interaction with parents (N = 32).

The kind of interaction with students considered in these products is illustrated by the products entitled "Classroom Strategies: Individualizing of Instruction," "The Role of the Teacher in Informal Counseling," "Individually Guided Motivation," and "Classroom Management."

Teachers are part of a social organization which requires that they interact with persons in other positions within the organization. This fact seems to be recognized by the developers of products aimed at

improving the skills of teachers in interacting with other teachers (N = 45), and also with supervisors (N = 32) and with other members of the school staff (N = 37).

To what extent are skills in the unplanned aspects of teacher behavior related to cognitive outcomes and to social-emotional outcomes? An emphasis on the latter kind of outcome was expected, inasmuch as interaction seemed to connote concern with social and presumably emotional effects of teaching. This expectation was not borne out, as is indicated in Tables 16 and 17. Of the 194 products concerned with interactive skills, 96 were concerned with cognitive student outcomes, and 92 with social-emotional outcomes. If the 98 products aimed at skills in informal interaction with students are considered, 55 were described as relevant to cognitive outcomes and 57 were described as bearing upon social-emotional outcomes (see in Tables 18 and 19).

TABLE 15

Frequency and Percentage of Products in Category 11: Skills in the Unplanned Aspects of Teacher Behavior[a]

Descriptor	N	%
Managing Student (Problem) Behavior	45	6.8
Providing Feedback	82	12.5
Informal Interaction with Students	93	14.9
Interaction with Parents	32	4.9
Interaction with Other Teachers	45	6.8
Interaction with Supervisors	32	4.9
Interaction with Staff	37	5.6
Use of Student Ideas	43	6.5
Others	12	1.8

[a]The descriptors in this category are not mutually exclusive.

TABLE 16

Frequency and Percentage of Products Concurrently in Categories 11 and 15: Skills in the Unplanned Aspects of Teacher Behavior and Target Student Outcomes--Cognitive

Target Student Outcomes--Cognitive

			No	Yes	Total
Skills in the Unplanned Aspects of Teacher Behavior	Yes	N	98	96	194
		%	14.9	14.6	29.5
	No	N	341	122	463
		%	51.9	18.6	70.5
	Total	N	439	218	657
		%	66.8	33.3	100.0

TABLE 17

Frequency and Percentage of Products Concurrently in Categories 11 and 16: Skills in the Unplanned Aspects of Teacher Behavior and Target Student Outcomes--Social-Emotional

Target Student Outcomes--Social-Emotional

			No	Yes	Total
Skills in the Unplanned Aspects of Teacher Behavior	Yes	N	102	92	194
		%	15.5	14.0	19.5
	No	N	413	50	463
		%	62.9	7.6	70.5
	Total	N	515	14.2	657
		%	78.4	21.6	100.0

TABLE 18

Frequency and Percentage of Products Concurrently in Categories 11.3 and 15: Skills in the Unplanned Aspects of Teacher Behavior (Informal Interaction with Students) and Target Student Outcomes (Cognitive)

Target Student Outcomes--Cognitive

			No	Yes	Total
Informal Interaction with Students	Yes	N	43	55	98
		%	6.5	8.4	14.9
	No	N	396	163	559
		%	60.3	24.8	85.1
	Total	N	439	218	657
		%	66.8	33.2	100.0

TABLE 19

Frequency and Percentage of Products Concurrently in Categories 11.3 and 16: Skills in the Unplanned Aspects of Teacher Behavior (Informal Interaction with Students) and Target Student Outcomes (Social-Emotional)

Target Student Outcomes--Social-Emotional

			No	Yes	Total
Informal Interaction with Students	Yes	N	41	57	98
		%	6.2	8.7	14.9
	No	N	474	85	559
		%	72.1	12.9	85.1
	Total	N	515	142	657
		%	78.4	21.6	100.0

Assessment and evaluation skills. Skills in assessment and evaluation are used by the teacher in determining the degree to which students possess certain kinds of abilities or habits (i.e., maximum or typical behaviors) before, during, and after instruction. Before instruction, the measures yield estimates of "entry behavior." During instruction, the teacher engages in questioning, reviewing, eliciting feedback, and interacting with students, already considered above. After instruction, the teacher gives tests aimed at the "assessment of student cognitive behavior" and also, perhaps, at the "assessment of student social-emotional behavior." If the behaviors are not merely assessed but are also compared with some conception of what is desirable, the teacher engages in "evaluation" of students' cognitive or social-emotional behavior. In addition, this category includes various auxiliary skills, namely "preparing objectives," "selecting tests," "constructing tests," "collecting and quantifying data" (RFPBE only) and "reporting procedures and record keeping."

Some educators see evaluation as something that should not be one-sided, that is, monopolized by the teacher. In this view, the teacher should be skilled in "involving students in self-evaluation" (RFPBE only) so that students will learn how to evaluate themselves in ways that will be useful when they no longer attend school. Further, teachers are considered to need to be able to evaluate themselves: 100 products have been aimed at skills in "teacher self-observation."

Table 20 shows the number of products considered to be aimed at each of these assessment and evaluation skills. Of all these skills, "preparing objectives" was most frequently the target of a teacher training product (N = 184). Next most frequent were products aimed at "assessment of student cognitive behavior" (N = 146) and "evaluation of student cognitive behavior" (N = 118).

In what way do products aimed at "assessment of student cognitive behavior" differ from those aimed at "evaluation of student cognitive behavior?" A cross-tabulation of these two skills, shown in Table 21, reveals that of the 146 "assessment-of-student-cognitive behavior" products and of the 118 aimed at "evaluation-of-student-cognitive behavior,"

88 were considered to deal with both. Inspection of the products that were described as concerned with assessment, but not with evaluation, showed that the intended distinction between these skills was not made either by product analysts or by the catalogs from which the products were analyzed. For example, the product "Devising and Implementing a Reinforcement System" was described as involving assessment but not evaluation, but a closer inspection of the catalog description suggested that both assessment and evaluation skills are intended trainee outcomes.

TABLE 20

Frequency and Percentage of Products in Category 12: Target Teacher Outcomes--Assessment and Evaluation Skills[a]

Descriptor	N	%
Preparing Objectives	184	28.0
Measuring Student Entry Behavior	101	15.4
Selecting Tests	40	6.1
Constructing Tests	66	10.0
Assessment of Student Cognitive Behavior	146	22.2
Assessment of Student Social-Emotional Behavior	95	14.5
Evaluation of Student Cognitive Behavior	118	18.0
Evaluation of Student Social-Emotional Behavior	72	11.0
Reporting Procedures and Record Keeping	58	8.3
Teacher Self-Observation	100	15.2
Collecting and Quantifying Data*	11	1.7
Involving Students in Self-Evaluation*	22	3.3
Others	55	8.4

[a]The descriptors in this category are not mutually exclusive.

*RFPBE only.

Teacher self-observation, as mentioned above, was the target of 100 products. Some examples are "Entry Program," which involves teacher self-observation as a key component in modifying instructional processes, and "Analyzing Teacher Behavior," which uses an interaction analysis system to instruct trainees to identify and practice several desirable teaching activities.

Teacher self-observation requires some medium through which the teacher can monitor and record his own behavior. When this category is cross-tabulated with the alternatives in the "nature of the training situation," data on how self-observation is performed can be obtained. Of the 100 teacher self-observation training products, 18 required the use of videotape recording equipment. Other teacher self-observation products required the teacher trainee to use film projectors (N = 23) or tape recorders (N = 19).

TABLE 21

Frequency and Percentage of Products Concurrently in Categories 12.5 and 12.7: Assessment and Evaluation Skills--Assessment of Student Cognitive Behavior and Evaluation of Student Cognitive Behavior

			Evaluation of Student Cognitive Outcomes		
			No	Yes	Total
Assessment of Student Cognitive Outcomes	Yes	N	58	88	146
		%	8.8	13.4	22.2
	No	N	481	30	511
		%	73.2	4.6	77.8
	Total	N	539	119	657
		%	82.0	18.0	100.0

Typically, assessment and evaluation skills are taught to teachers in courses in which they study textbooks, listen to lectures, see an occasional film, and carry out exercises calling for test construction, administration, and interpretation. How do the products aimed at

assessment and evaluation skills satisfy our requirement that a teacher training product must cause the trainee to do something more than merely read, listen, or watch? What do they ask for? A cross-tabulation of products in this category with descriptions of the "nature of skills' practice during training" shows that of the 403 products aimed at assessment and evaluation skills 256 entail paper and pencil exercises, 60 require teaching to peers, and 101 require teaching other students (see Tables 22 through 24). In addition, the analysts identified 142 products that required some other kind of practice.

How does the assessment of student social-emotional behavior differ from the evaluation of it? Table 25 shows a cross-tabulation of the products in the two categories of skill. Of the 95 products concerned with assessment of student social-emotional behavior, and the 72 products concerned with evaluation, 57 were concerned with both. Apparently the distinction between assessment and evaluation of student socioemotional behaviors involves considerable overlap within products.

Affective outcomes. Here we are concerned with the effects of teacher training products on attitudes and other emotionally toned behaviors of the teacher. Table 26 shows the number of products described as dealing with each nine kinds of affective outcomes. The most frequently occurring features of this type of outcome were influencing teachers' "attitudes toward students" (N = 76), improving the teacher's "attitudes toward teaching" (N = 58), and "motivation to achieve" (N = 53).

What kind of activity or practice do developers consider to be effective for "training" affective behavior? In other words, How does one go about influencing a teacher's affective concepts through a teacher training product? Cross-tabulation of the general category of teacher affective outcomes with the various alternatives in the "nature of the training situation" throws light on this question. As Table 27 shows, of the 172 products considered to be aimed at affective outcomes for teachers, 126 used manuals; 21, games; 33, films; 19, videotapes; 21, audiotapes; and 56, some other kind of material, such as goal cards, filmstrip and record combinations, role playing cards, situation statements, decision matrices, progress charts, and sample lesson plans.

TABLE 22

Frequency and Percentage of Products Concurrently in Categories 12 and 23.1: Assessment and Evaluation Skills, and Nature of Skills Practice during Training--Paper and Pencil Exercises

			Paper and Pencil Exercises		
			No	Yes	Total
Assessment and Evaluation Skills	Yes	N	147	256	403
		%	22.4	39.0	61.3
	No	N	138	116	254
		%	21.0	17.7	38.7
	Total	N	285	372	657
		%	43.4	56.6	100.0

TABLE 23

Frequency and Percentage of Products Concurrently in Categories 12 and 23.2: Assessment and Evaluation Skills, and Nature of Skills Practice during Training--Teaching to Peers

			Teaching to Peers		
			No	Yes	Total
Assessment and Evaluation Skills	Yes	N	343	60	403
		%	52.2	9.1	61.3
	No	N	237	17	254
		%	36.1	2.6	38.7
	Total	N	580	77	657
		%	88.3	11.7	100.0

TABLE 24

Frequency and Percentage of Products Concurrently in Categories 12 and 23.3: Assessment and Evaluation Skills, and Nature of Skills Practice during Training--Teaching to Students

			Teaching to Students		
			No	Yes	Total
Assessment and Evaluation Skills	Yes	N	302	101	403
		%	46.0	15.4	61.3
	No	N	214	40	254
		%	32.6	6.1	38.7
	Total	N	516	141	657
		%	78.5	21.5	100.0

TABLE 25

Frequency and Percentage of Products Concurrently in Categories 12.6 and 12.8: Assessment and Evaluation Skills--Assessment of Student Social-Emotional Behavior and Evaluation of Student Social-Emotional Behavior

			Evaluation of Student Social-Emotional Behavior		
			No	Yes	Total
Assessment of Student Social-Emotional Outcomes	Yes	N	38	57	95
		%	5.8	8.7	14.5
	No	N	547	15	562
		%	83.3	2.3	85.6
	Total	N	5.85	72	657
		%	89.0	11.0	100.0

TABLE 26

Frequency and Percentage of Products in Category 13: Target Teacher Outcomes--Affective Outcomes[a]

Descriptor	N	%
Ethics and Values about Teaching Profession	26	4.0
Attitudes Toward Teaching	58	8.8
Teacher Self-Concept	38	5.8
Teacher Locus of Control	28	4.3
Job Satisfaction	46	7.0
Attitudes Toward Subject Matter	39	5.9
Attitudes Toward Students	76	11.6
Motivation to Achieve	53	8.1
Ability to Get Along with Others	47	7.2
Others	16	2.4

[a]The descriptors in this category are not mutually exclusive.

TABLE 27

Frequency of Products Concurrently in Categories 13 and 18: Affective Outcomes and Nature of Training Situation[a]

Nature of Training Materials	N
Manuals	126
Games	21
films	33
Videotapes	19
Audiotapes	21
Others	56

[a]The descriptors in this category are not mutually exclusive.

A related question is, With whom do teachers interact during training to improve affective outcomes? Cross-tabulation of this category with "personnel required to administer training" is shown in Tables 28 through 30. These tables show that of the 172 products aimed at affective outcomes, 7 require an outside consultant, 105 a supervisor or leader familiar with materials, and 76 are self-administered. Thirty-seven products require some other kind of personnel, e.g., a group to participate in a game or simulation situation, a university instructor, students for feedback in a microteaching situation, or a group of peers used in analyzing a trainee's practice teaching.

TABLE 28

Frequency and Percentage of Products Concurrently in Categories 13 and 21.1: Affective Outcomes and Personnel Required to Administer Training--Outside Consultant

			Outside Consultant		
			No	Yes	Total
Teacher Affective Outcomes	Yes	N	165	7	172
		%	25.1	1.1	26.2
	No	N	474	11	485
		%	72.1	1.7	73.8
	Total	N	639	18	657
		%	97.3	2.7	100.0

TABLE 29

Frequency and Percentage of Products Concurrently in Categories 13 and 21.2: Affective Outcomes and Personnel Required to Administer Training--Supervisor or Leader Familiar with Materials

		Supervisor or Leader		
		No	Yes	Total
Teacher Affective Outcomes: Yes	N	67	105	172
	%	10.2	16.0	26.2
Teacher Affective Outcomes: No	N	347	138	485
	%	52.8	21.0	73.8
Total	N	414	243	657
	%	63.0	37.0	100.0

TABLE 30

Frequency and Percentage of Products Concurrently in Categories 13 and 22.3: Affective Outcomes and Personnel Required to Administer Training--Self-Administered

		Self-Administered		
		No	Yes	Total
Teacher Affective Outcomes: Yes	N	96	76	172
	%	14.6	11.6	26.2
Teacher Affective Outcomes: No	N	303	182	485
	%	46.1	27.7	73.8
Total	N	399	258	657
	%	60.7	39.3	100.0

Other skills. Several intended outcomes in teacher skill and behavior did not fit into any of the foregoing categories. These "other skills" were the targets of 159 teacher training products. Of these, as is shown in Table 31, the most frequent "other skill" was "developing subject-related skills"(N = 81). Examples of products of this kind are: "Organizing Facts to Teach Meaningful Relationships," "Introductory Sociology," "Introductory Psychology," "Mathematics for the Elementary Teacher," "Handwriting," and so on. Next most frequent in this category were products intended to improve the teacher's ability in "solving problems" (N = 37; RFPBE only). The kinds of problems with which these products dealt are illustrated by the following: "Life Skills: Decision I," in which the trainee is concerned with real-life "trade-off" decision-making situations; "Reseach Utilizing Problem-Solving-Classroom Version," which teaches the process of identifying and diagnosing classroom problems and designing actions to resolve them; "Group Processes in Task Team," which deals with problem-solving and group decision-making in task teams; and "Experiments Teach," which has the trainee find the rules that structure the "Think-A-Dot" game in order to illustrate the basic functions of logic and to teach skills related to systematic case study and experimental methods that can be transferred to teaching situations.

Only two skills in this category involve work with students: "moving groups of students" (N = 8) and "playing games/supervising recreation" (N = 6). Since a large fraction of the "other skills" seemed to fit into none of these categories, 41 products had to be considered "unclassified" other skills. Among them were the following: Psychomotor skills taught by such products as "One and Two Point Forehand Perspective Drawing" and "Motion Picture Projections;" and occupational planning emphasized in "The Nature of the Teaching Profession" and "Observation and Consideration of Teaching Levels and Types of Schools."

TABLE 31

Frequency and Percentage of Products in Category 14: Target Teacher Outcomes--Other Skills[a]

Descriptor	N	%
Applying for a Job	4	0.6
Collecting and Administering Money	0	0
First Aid	1	0.2
Moving Groups of Students	8	1.2
Playing Games, Supervising Recreation	6	0.9
Representing School and School Programs*	4	0.6
Involving Others in School Programs*	11	1.7
Developing Subject-Related Skills*	81	12.3
Solving Problems*	37	5.6
Others	41	6.2

[a]The descriptors in this category are not mutuall exclusive.

*RFPBE only.

Target Outcomes for Students

Teacher training products are intended to improve teaching behaviors and skills not as ends in themselves, but as means toward improving educationally significant student behaviors, such as knowledge, understanding, and attitudes. This principle demands that teacher training products be evaluated, in so far as possible, in terms of their effects on outcomes in student behavior. Only recently, apparently, have product developers become sensitive to this viewpoint. For this reason, relatively few of the sources which described teacher training products mentioned such intended outcomes. Of those that did, very few referred to empirical evidence regarding the degree to which these intentions have been fulfilled. When product descriptions were sent to the product developers for verification, the developers frequently checked a considerable number of "target student outcomes" without offering substantiating evidence.

For these reasons, the descriptions of the products in terms of targeted behavior should be regarded with considerable skepticism. More careful examination of the products than has thus far been possible and more field testing of such outcomes than has thus far been typical of developing in this field are required before anyone will be justified in taking seriously the description of products in terms of student outcomes.

Nonetheless, it is useful to examine these descriptions with the understanding that, in the catalog descriptions or the developers' views, the student outcomes are important "targets." The targets may be remote, and the chances of hitting them may be slim, but they provide an expression of what product developers see as the ultimate or nearly ultimate criteria of their product's effectiveness.

Target student outcomes were classified as "cognitive" or "social-emotional," according to the usual definitions of these terms--i.e., "cognitive" refers to intellectual objectives of education, and "social-emotional" refers to objectives that include the student's emotional adjustment, ability to get along with others, interest, motivation, beliefs, and attitudes, and the like.

Target student outcomes in the cognitive domain. As is shown in Table 32, of the 218 products for which cognitive outcomes were considered to be targets, 139 were described as focusing on "acquisition of information," 120 on "comprehension of information," and 112 on "application of information." These cognitive objectives are, of course, among the best established in the thinking of educators. They have been standard in education for centuries, and it is little wonder that they were most frequently considered to be the targets of teacher behaviors and skills at which teacher training products were aimed.

Two other kinds of cognitive objectives--"intellectual independence" and "creativity"--have always been considered desirable. Both were seen as improvable or teachable in schools. However, only in the last few decades have teacher educators realized that teachers need to be explicitly trained in a repertory of skills thought to be related to the achievement of these objectives. In these categories, 73 products were con-

sidered to be aimed at "intellectual independence"; 61 products were considered to be aimed at "creativity." Finally, inspection of "other" cognitive outcomes which were listed for 28 products revealed that psychomotor outcomes were mentioned as "others" for eight of the products, thus suggesting that psychomotor student outcomes should be added to the Product Description Form. The remaining 20 products listed such other outcomes as abstract thinking, problem solving, and inquiry skills.

TABLE 32

Frequency and Percentage of Products in Category 15: Target Student Outcomes--Cognitive[a]

Descriptor	N	%
Acquisition of Information	139	21.1
Comprehension of Information	120	18.3
Application of Information	112	17.0
Creativity	61	9.3
Intellectual Independence	73	11.1
Other	28	4.3

[a]The descriptors in this category are not mutually exclusive.

Target student outcomes in the social-emotional domain. The products whose source catalog descriptions or developers' descriptions referred to student outcomes in the social-emotional domain numbered 142. Of these, as is shown in Table 33, the most frequently sought outcome was "increase of interest" (N = 62). Next most frequent were products aimed at student "motivation to achieve" (N = 48); "change of beliefs and attitudes" (N = 42), "ability to get along with others" (N = 40), and "improvement of self-concept" (N = 39).

TABLE 33

Frequency and Percentage of Products in Category 16: Target Student Outcomes--Social-Emotional[a]

Descriptor	N	%
Emotional Adjustment	19	2.9
Increase of Interest	62	9.4
Motivation to Achieve	48	7.3
Change of Beliefs and Attitudes	42	6.4
Improvement of Self-Concept	39	5.9
Learning of Social Roles	25	3.8
Learning of Values	32	4.9
Engineering Internal Locus of Control	23	4.9
Decrease of Disruptive Behavior	26	4.0
Emotional Independence	18	2.7
Ability to Get Along with Others	40	6.1
Others	6	0.9

[a]The descriptors in this category are not mutually exclusive.

All of the foregoing are well-established educational objectives in the social-emotional domain. Yet it is noteworthy that, compared with outcomes in the cognitive domain, they were targets of teacher training products relatively infrequently. For whatever reason, product developers seemed to place more emphasis on cognitive objectives than on social-emotional outcomes. It is also noteworthy that "decrease of disruptive behavior," which has always been a major concern of teachers, is the target of only 26, or 4 percent, of the teacher training products, at least as described by the catalogs and the product developers. This target has been the subject of much research and development by psychologists using the behavior modification approach. Many papers in the Journal of Applied Behavior Analysis and similar journals have dealt with techniques for decreasing disruptive behavior in the classroom. It remains for further analysis to determine whether the relatively small number of

products reflects a high degree of effectiveness and usefulness in the classroom. If so, additional products may be unnecessary. This hypothesis can be tested only by determining the degree to which products dealing with "decreasing disruptive behavior" have been verified empirically.

Another possible explanation for the relatively high frequency of "increase of interest" and "motivation to achieve" as targets as compared with "decrease of disruptive behavior" is that product developers have chosen to emphasize positive goals rather than the decrease of undesirable outcomes. Thus, insofar as the first two outcomes are realized, it seems logical to assume that the last-named one will also be attained. In the behavior modification approach, indeed, the decrease of disruptive behavior is usually sought by withholding the reinforcement of such behavior while increasing the reinforcement of the incompatible behaviors reflecting interest and motivation to achieve. Thus, the products in these three categories may overlap considerably in intent and process, and differ primarily in terminology. Only detailed examination of the products considered to be aimed at these outcomes will show the extent to which this characterization is justified.

Some social-emotional outcomes are still, perhaps, regarded as objectives of "incidental learning" rather than objectives to be sought explicitly by the classroom teacher. Thus, "learning of social roles," "learning of values," and "emotional independence" are among the least traditional of explicit instructional objectives. They are matters which teachers have long been expected to be concerned with, but not to "teach." That product developers seem to have aimed at teacher behaviors and skills that lead to such outcomes reflects an effort to explicate what has long been considered to be well left implicit in the teacher's role.

The relatively greater frequency of "improvement of self-concept" (N = 39) as compared with "emotional adjustment" (N = 19) may reflect a changing emphasis in educational thinking, more than a change in mere terminology. In this sense the improvement of self-concept is seen as relatively more directly subject to the teacher's influence than "emotional adjustment," which may be a function of many influences other than those of the teacher in the classroom.

Product Availability

This category of product description information deals with the purchase price, rental price, cost per trainee, and availability of the teacher training products identified in our search. Figure 1 shows the distribution of cost for the 332 products for which price information was available. The median purchase price is quite low ($3.00), although the mean is raised considerably (to $88.13) by a few very costly products. The 25th percentile is $1.50 and the 75th percentile is $17.00. The range of costs is from $0.00 to $6000.00. The relationship between the cost of a product and the nature of the materials provided with it will be discussed in a later section.

The median rental price of the 19 products for which this information was available is $45.00, while the mean rental price of these products is somewhat higher at $71.70 owing to the substantially greater rental cost of 5 percent of the products. The 25th percentile of rental price is $15.00 and the 75th percentile is $165.00. The range in product rental cost is from $5.00 to $220.00.

Information regarding the cost of training per trainee was available for 20 products. The median cost per trainee is $3.80 and the mean cost per trainee is $6.55. The 25th percentile is $1.50 and the 75th percentile is $5.70. The cost of training per trainee ranges from $.30 to $45.00.

Fifteen of the products identified are not yet available for dissemination, but are expected in 1974 and 1975.

Nature of the Training Situation

What is the form of the training provided by a given product? Here we are concerned with the materials provided with the product, the materials and equipment to be provided by the user, the time and personnel required to administer training, the number of trainees using the product at one time, and the nature of the practice required during the training. A description of the products on each of these dimensions provides much information useful in understanding how the product "works," though it cannot substitute for an exposition of what the trainee does as he uses the product. Such expositions will need to wait upon firsthand examination of the products and observation of the products in use.

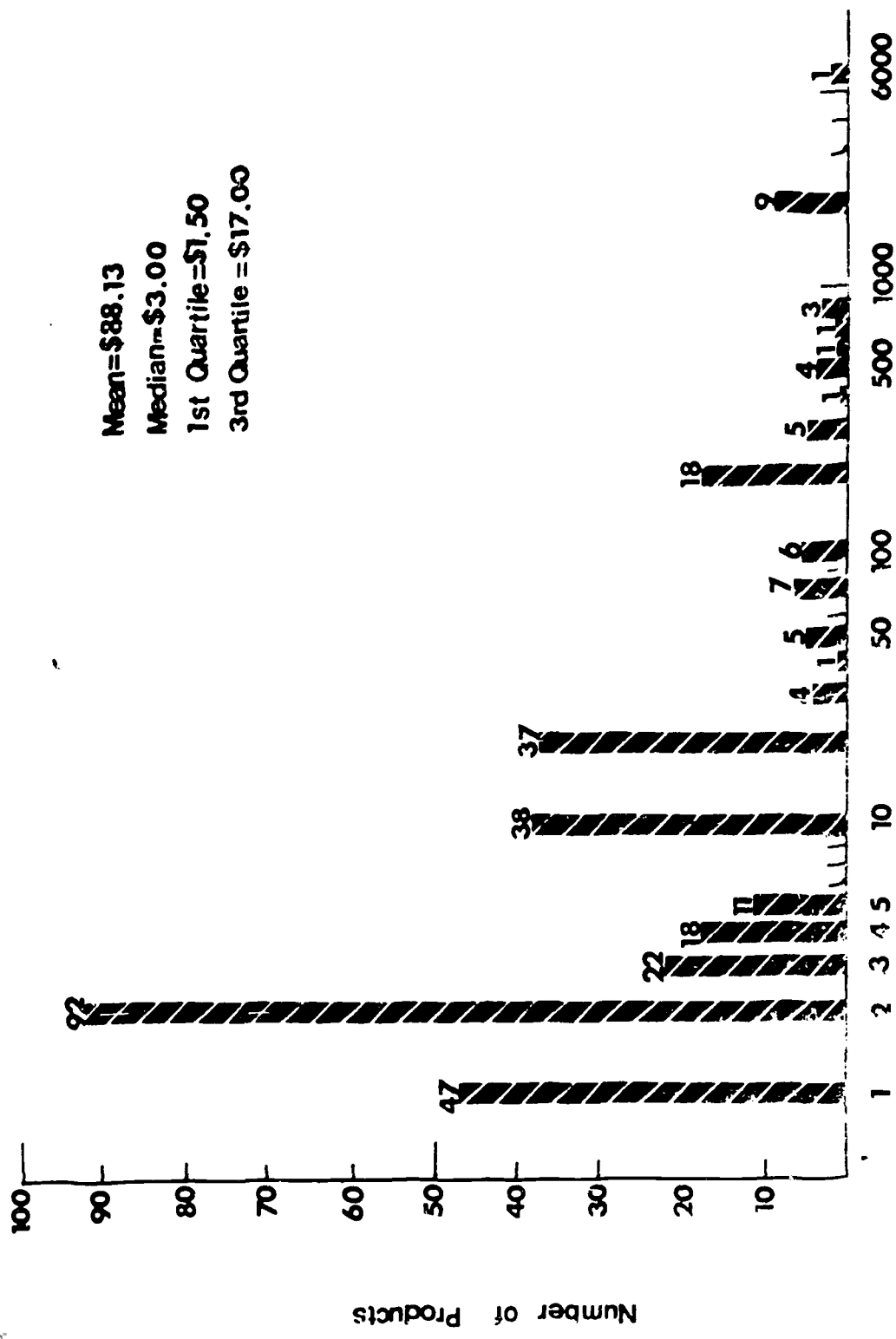

Fig. 1. Product distribution by purchase price for 324 products.

Materials provided with the product. As shown in Table 34, the most frequently provided kind of material by far was the manual (N = 485). Next most frequent were audiotapes (N = 89) and films (N = 84). Videotapes (N = 35) and games (N = 26) were the least frequently used. Many of the products used more than one type of training manual. Thus, it is necessary also to look at the ways in which products used various combinations of these kinds of materials. Table 35 shows the frequency with which each possible pair of training materials was used in training products. The most frequently paired materials were manuals and films (N = 43) and manuals and audiotapes (N = 24).

TABLE 34

Frequency and Percentage of Products in Category 18: Nature of Training Situation--Materials Provided with Product[a]

Descriptor	N	%
Manuals	485	73.8
Games	26	4.0
Films	84	12.8
Videotapes	35	5.3
Audiotapes	89	13.5
Others	161	24.5

[a]The descriptors in this category are not mutually exclusive.

Table 35 shows the combinations of these materials three at a time and the frequencies of these combinations; also four at a time; and all five combined in a single product. The most frequently occurring of these various combinations is manuals, audiotapes, and filmstrips (N = 29).

That manuals are most frequently used is understandable in view of their flexibility, wide applicability, and low cost. The same explanation would apply to the relatively high frequency of audiotapes. Although films are fairly expensive, they were also frequently used, because they

are well established as a medium and can be brought to a high degree of technical polish. The relatively infrequent use of games as a training device is more difficult to explain. One possibility is the relatively recent introduction of this training technique into education. Also, it may be that the typical connotation of the word "game" as entertainment has prejudiced educators against their use. The category of "other" materials consists largely of slides and film strips.

Table 35 also shows the relationship between the kinds of materials provided with the product and the product's purchase price. Among products which provide only one kind of material, those that provide tend to be the most costly (median = $127.50). In descending in order of cost are products that provide videotapes (median = $95.00), audiotapes (median = $7.80), filmstrips (median = $16.00), games (median = $8.00), and manuals (median = $1.50). The incremental cost of adding a particular type of material to a product tends to maintain the rank order found among products which provide only a single kind of material; i.e., it is most expensive to add a film to a product and least costly to add a manual.

Materials and equipment to be provided by the user. User-provided materials and equipment constitute a part of the cost of a product. If videotape equipment is required, the cost of using the product goes up substantially. Of course, this cost can be distributed over all of the trainees who use the product. In other words, the cost of using a product is indicated only in small part by the cost of the product itself when equipment such as videotape recorders and cameras needs to be purchased.

As is shown in Table 36, a tape recorder is required of the user of 145 of the products; a film projector, for 101; a filmstrip projector, by 87; a videotape playback machine by 76; a videotape recorder, by 55; and a slide projector by 29. The "other" category (N = 169) consists of alternative or optional book materials (N = 69), films and filmstrips (N = 32), audiotapes (N = 18), and workbooks, slides, and computers.

TABLE 35

Frequency, Percentage, and Cost of Combinations of Materials in Category 18: Nature of Training Situation-- Materials Provided with Product

Materials	N	%	Median Cost	
Manuals Only	310	47.2	$ 1.50	(130)*
Games Only	8	1.2	8.00	(3)
Film Only	7	1.0	127.50	(6)
Videotapes Only	3	0.5	95.00	(1)
Audiotapes Only	7	1.0	7.80	(3)
Filmstrip Only	2	0.3	16.00	(2)
Manuals and Games	9	1.4	14.00	(4)
Manuals and Films	43	6.5	250.00	(23)
Manuals and Videotapes	20	3.0	120.00	(3)
Manuals and Audiotapes	24	3.7	6.50	(8)
Manuals and Filmstrips	9	1.4	10.00	(5)
Manuals and Slides	4	0.6	70.50	(2)
Films and Audiotapes	4	0.6	5.60	(4)
Films and Filmstrips	2	0.3	190.45	(1)
Videotapes and Audiotapes	1	0.2	-	(0)
Audiotapes and Filmstrips	2	0.3	-	(0)
Manuals, Games, and Films	2	0.3	-	(0)
Manuals, Games, and Videotapes	2	0.3	-	(0)
Manuals, Films, and Videotapes	2	0.3	1399.00	(1)
Manuals, Films, and Audiotapes	10	1.5	20.04	(4)
Manuals, Films, and Filmstrips	5	0.8	450.00	(1)
Manuals, Videotapes, and Audiotapes	1	0.2	1.50	(1)
Manuals, Videotapes, and Filmstrips	1	0.2	-	(0)
Manuals, Videotapes, and Slides	2	0.3	-	(0)
Manuals, Audiotapes, and Filmstrips	29	4.4	39.88	(2)
Manuals, Audiotapes, and Slides	5	0.8	139.00	(1)
Games, Films, and Slides	1	0.2	1625.00	(1)
Films, Audiotapes, and Filmstrips	1	0.2	-	(0)
Manuals, Games, Films, and Videotapes	1	0.2	-	(0)
Manuals, Games, Films, and Audiotapes	1	0.2	-	(0)
Manuals, Games, Films, and Slides	1	0.2	-	(0)
Manuals, Films, Audiotapes, Filmstrips	2	0.3	75.00	(3)
Manuals, Games, Films, Videotapes and Audiotapes	1	0.2	-	(0)
Manuals, Films, Videotapes, Audiotapes and Filmstrips	1	0.2	-	(0)

*The number in parentheses is the number of products on which the median cost figure is based. This number may differ from the total number of products using a given combination of training materials owing to the omission of information from Category 17 (Product Availability) on some Product Description Forms. The total number of products represented in this table (523) is less than the total number of products described (657) owing to several idiosyncratic types of training materials not represented in the categorizing system.

The data in Tables 36 and 37 indicate that the developers of teacher training products often use instructional technology other than the medium of print. Approximately 50 percent of the products provided or required the user to provide nonprint materials.

TABLE 36

Frequency and Percentage of Products in Category 19: Nature of Training Situation--Materials and Equipment to be Provided by User[a]

Descriptor	N	%
VTR Recording Equipment	55	8.4
VTR Playback	76	11.6
Film Projector	101	15.4
Tape Recorder	145	22.1
Slide Projector	29	4.4
Filmstrip Projector	87	13.2
Others	169	25.7

[a]The descriptors in this category are not mutually exclusive.

Time required to administer training. Another major determiner of the cost of training is the number of hours required to complete training. If the trainee is an in-service teacher, this time can be directly converted into dollars. Since school boards and administrators are often reluctant to provide time for training in which teachers are released from their regular classroom duties, training ought to take the minimum time possible. Against these considerations must be ranked the importance of effectiveness in training. Training time is wasted to the degree that it does not make a difference in how teachers behave, work, and influence their students.

The distribution of products on the dimension of number of hours required for administering the teacher training product is shown in Figure 2. The number of hours ranges from 1 to 640. The median is 8;

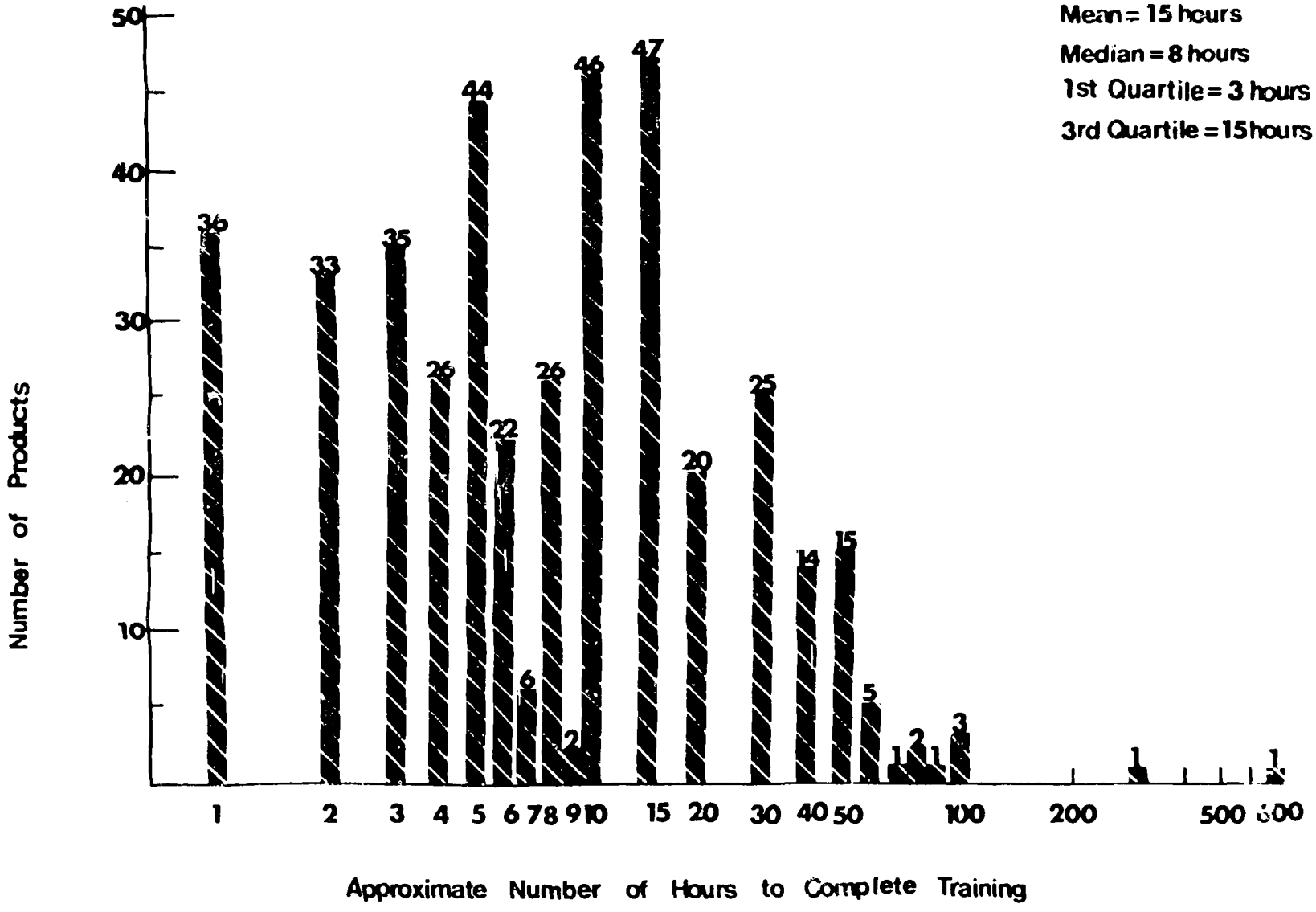

Fig. 2. Product distribution by time required to complete training for 401 products.

skewness raises the mean to 15.4 The 25th percentile is 3 hours and the 75th percentile is 15 hours. Thus, the middle 50 percent of the products is included in the range from 3 to 15 hours.

Given the median of 8 hours, and assuming that the average cost of a teacher's time is $10 per hour, it becomes apparent that, above and beyond the cost of acquiring product, the cost of using the typical product in terms of time-required-to-administer is $80. This figure ought to be more widely known in the field of teacher education, school administration, and educational finance.

On the other hand, it might be argued that the cost of training should be estimated on the assumption that the teacher will be using out-of-class time for training. Thus, the cost becomes that of whatever other activity or function the teacher is leaving undone while involved in training. How this cost would be estimated is at present unknown. It requires a qualification of intangibles not highly amenable to a cost-benefit analysis. Yet the point remains that using teacher training products entails costs beyond that of the product itself.

Personnel required to administer training. Insofar as someone other than the teacher is required to administer the training, the cost is further increased. That developers have been aware of this fact is indicated in Table 37 by the high frequency (N = 258) of products intended to be self-administered. However, an equally large number of products require a supervisor or leader familiar with the materials (N = 243). And an outside consultant--someone presumably not a part of the regular school system staff--is required by 18 of the products. "Other personnel" (N = 91) proves to refer to groups, such as those necessary for a game or microteaching situation (N = 35), a resource person (N = 16), and evaluators, faculty advisors, projectionists, camera operators, and so forth.

Number of trainees using the training product simultaneously. As shown in Figure 3, the minimum number of persons involved in training may be only one, but if the trainee needs a partner, or if a game requires several participants, or a role-playing exercise requires a group, then the minimum number of trainees obviously increases. The distribution of

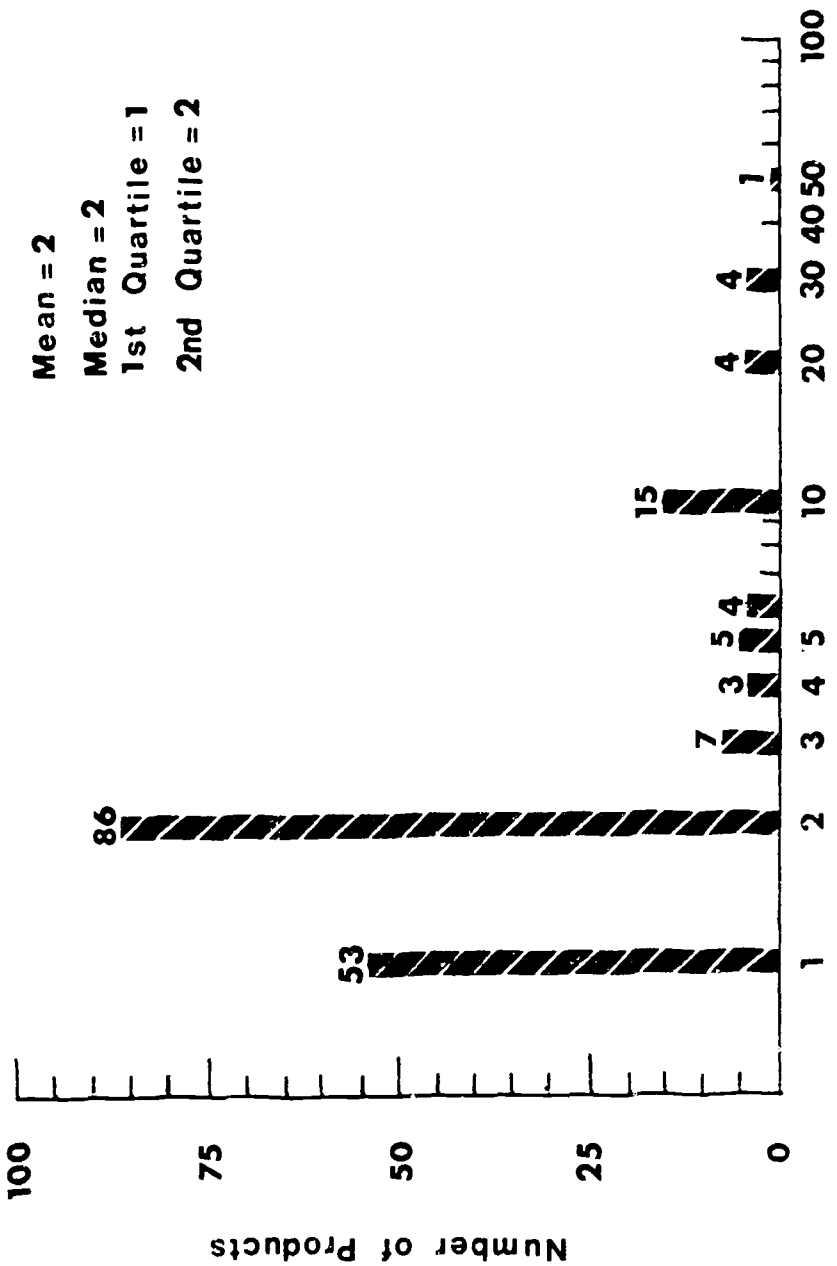

Fig. 3. Product distribution by minimum number of trainees using training at one time.

these minima, shown in Figure 3, is centered around a median of 2 with a range from 1 to 50. The 75th percentile is also 2.

TABLE 37

Frequency and Percentage of Products in Category 21: Personnel Required to Administer Training[a]

Descriptor	N	%
Outside Consultant	18	2.7
Supervisor or Leader Familiar with Materials	243	37.0
Self-Administered	258	39.3
Others	91	13.9

[a]The descriptors in this category are not mutually exclusive.

The same possibilities apply to the maximum number of trainees. As shown in Figure 4, the distribution here has a median of 10, with a range from 1 to 250, and a 75th percentile of 30.

Training that can be administered to large groups at a time is likely to be less expensive in terms of the unit cost per user of the materials and equipment and of special training personnel. But here, again, cost estimation becomes complex. If the cost of the material is low, as is true in the case of manuals, and if the material can be self-administered, as is true in the case of programmed instruction manuals, and if the minimum number of trainees can be one at a time, while the maximum number of trainees is indefinitely large, then the training program can be made extremely flexible as to number of hours, placement of hours in a schedule, location of the training, and so on. On the other hand, if the training requires an outside consultant, a group of trainees of a fixed size, a set number of hours of training, and a location of adequate size and having the required equipment for training, then the organization of the training program may be difficult for certain administrative systems in some schools.

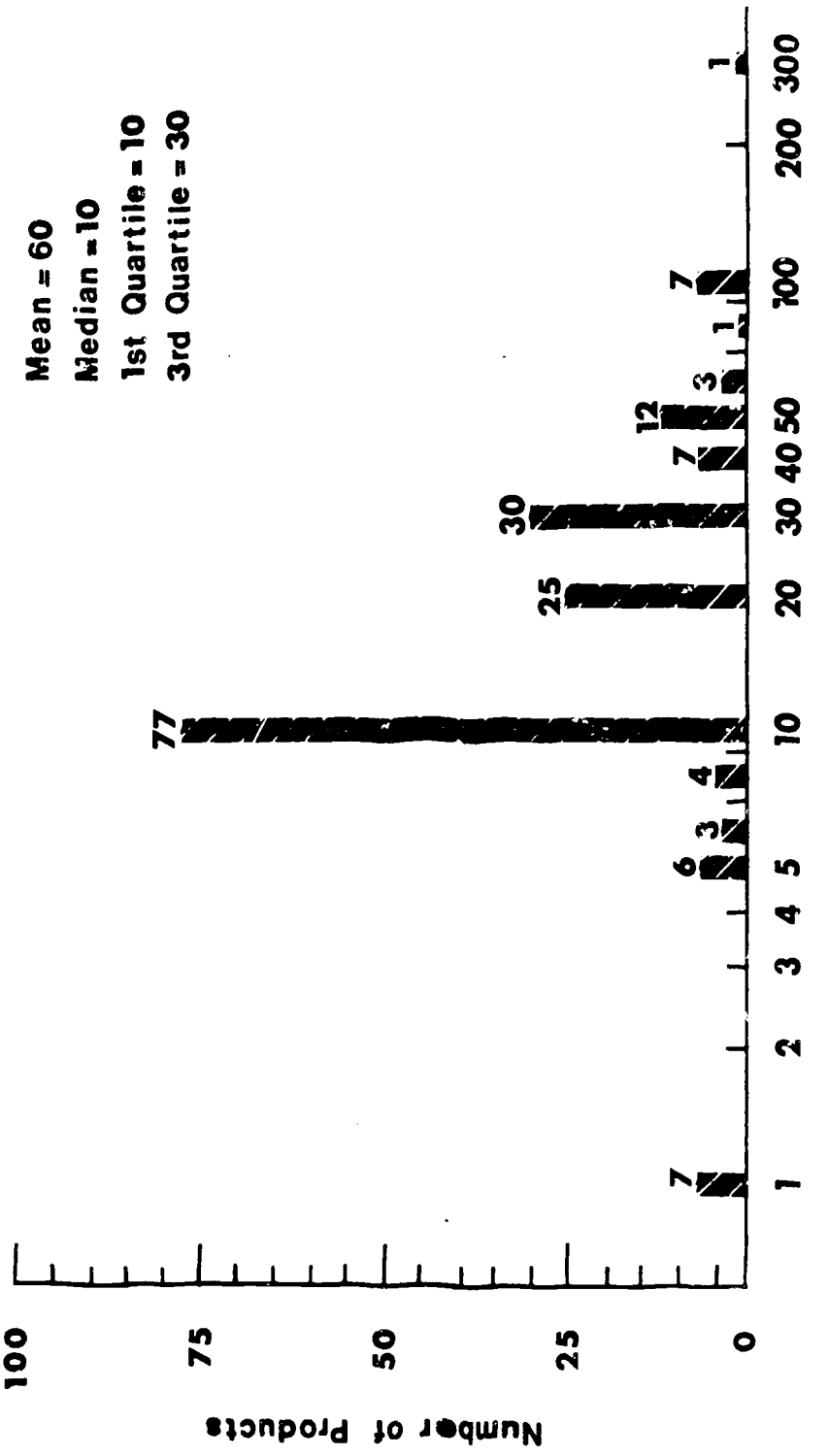

Fig. 4. Product distribution by maximum number of trainees using training at one time.

Nature of skills practice during training. It should be recalled that a teacher training product was defined at the outset as a product that requires the trainee to go beyond reading, listening, or looking as he seeks to acquire or improve a skill in teaching. An important question is, What kinds of activity, or practice, beyond reading, listening, and looking, are entailed in the teacher training products considered here? As is shown in Table 38, the most frequently used activity is paper-and-pencil exercises (N = 372). These may be programmed materials that require the trainee to answer questions on paper as he goes through the frames of such material. A substantial number of products require more direct experience: thus, teaching students is required in 141 products, and teaching peers (fellow trainees) in 77. The "other" kinds of skill practice (N = 246) include the following most frequent types: discussion (N = 76), application of measurement techniques (N = 51), and simulation, role playing, and games (N = 23), along with observation, fieldwork, and trainee designed projects.

TABLE 38

Frequency and Percentage of Products in Category 23: Nature of Skills Practice During Training[a]

Descriptor	N	%
Paper and Pencil Exercises	372	56.6
Teaching to Peers	77	11.3
Teaching to Students	141	21.5
Others	246	37.4

[a]The descriptors in this category are not mutually exclusive.

The form of practice incorporated by developers to achieve the objectives of the training should depend on the nature of those objectives and on the theory, explicit or implicit, of the learning process in which the trainee will be involved. The use of symbols in training has long been fundamental to the acquisition of "knowledge that,"

as that term has been defined above. But, for many kinds of training objectives which entail acquisition of "knowledge how," symbols have often been considered inadequate. Just as one does not learn how to swim only by reading about it, one cannot learn how to perform certain skills of teaching only by reading, writing, or answering verbal questions about them. For this reason, student teaching has been for many decades a standard part of teacher education, and microteaching was adopted within a decade of its invention in many hundreds of teacher education programs throughout the world. "Minicourses" were developed by the Far West Laboratory on the basis of the same rationale.

Yet, other workers have repeatedly raised the question of whether what is learned through student teaching, microteaching, and minicourses cannot often be learned as well through less expensive kinds of activity. Thus, in one recent study, Wagner (1973) showed experimentally that teachers given discrimination training on the nature of student-centered teaching were more able than those trained through microteaching to use student-centered teaching in subsequent teaching sessions.

Phase of Teaching in Which Skills Are Used

Toward what phase of teaching are teacher training products directed? I.e., will the skills learned by the teacher be used prior to, during, or after interaction with students?

When the skills are to be used prior to interaction with students, they apply to what has been called the "preactive" (Jackson, 1966), "pretutorial" (Stolurow, 1965), or "pre-impact" (Mosston, 1972) phase. These terms refer to the planning, decision-making, and strategy-choosing work that the teacher does prior to meeting students in the face-to-face situation of the classroom. Table 39 shows that of the 657 products, 378 were considered to be concerned with skills that are largely used prior to interaction with students, 143 with skills that are sometimes used prior to interaction with students, and 105 with skills never used prior to interaction with students; 31 products were not classified on this dimension. Evidently, product developers have been very much concerned with these preactive kinds of skills. Examples of products aimed at skills used largely prior to interaction with students but never during

or after interaction include "Using Behavioral Objectives," in which a trainee is taught to identify and specify behavioral objectives; "Individualizing Instruction," which requires development of five strategies for individualizing instruction; and "Instructional Modules: What They Are," which deals with the purpose, scope, and sequence of instructional modules.

Table 39 also shows that, for skills to be used during interaction with students, the distribution of the 657 products was 354 for "largely used," 161 for "sometimes used," and 113 with "never used"; 29 products were not classified on this dimension. Examples of products aimed at skills used largely during interaction with students but never prior to or after interaction include "Classroom Management and Discipline - Wilkit No. 4," in which the trainee learns a repertoire of skills for use in classroom management; "Communication and Attending Behavior," which teaches the trainee to recognize attending behavior in students; "Interaction Analysis Training Kit - Level I," which gives the teacher a basic tool for analyzing classroom interaction; and "Reality Therapy - A Programmed Text," designed to help the trainee work more effectively with students in changing their behavior.

Finally, some products are aimed at improving skills to be used after interaction with students. Of the 657 products, 168 were considered to be aimed at skills largely to be used in this phase of teaching; 198, sometimes to be used in this phase; 259, never to be used in this phase; and 32 were unclassified. Among the products designed to be used largely after interaction with students are the following: "Interpreting Test Scores," a programmed introduction to measurement and evaluation, and "The Parent-Teacher Conference," which gives principles, techniques, and practice through simulation in conducting parent-teacher conferences.

Field Test Results

What is most important about any teacher training product is the evidence of its effectiveness in (a) changing teacher behavior, or (b) improving student achievement of educational objectives. Such evidence should take the form of data from empirical studies, preferably

experiments in which the teachers given training with a product are compared with teachers not given such training. Designs for such experiments are well known (e.g., Campbell & Stanley, 1963) and have recently been treated specifically by Okey and Ciesla (1973) in relation to the problem of evaluating teacher training products.

TABLE 39

Frequencies of Products in Category 24: Phase of Teaching in Which Skills Are Used

Phase of Teaching	Largely	Sometimes	Never	No Response	Total
Prior to interaction with students	378	143	105	31	657
During interaction with students	354	161	113	29	657
After interaction with students	168	198	259	32	657

Table 40 shows the number of products for which various kinds of field test information were available in the sources on which this monograph is based. For 87 of the products, a reference to published field test results was available in the catalog from which the products were identified. For 83 products, the source catalog stated that the product had been "field tested by the developer." For 22 of the products, a reference was made to unpublished data or an unpublished report.

For 7 of the products, the developer, when asked, claimed positive results. For 12 of the products, it was indicated that field testing was planned or in progress. For 77 of the products, no field testing has been performed, or it was indicated that the results were available only to the developer of the product. Finally, for more than half of the 657 products, no information concerning field testing (N = 369) was available in any form.

More detailed examination of the field test information is necessary than was possible for the purposes of the present report. The kind of information provided in the 87 references to field test results has yet

to be determined. Similarly, further efforts must be made to determine the bases for the developers' claims of positive results for 7 of the products. Nonetheless, even without such further investigation and analysis, the broad outlines of the field test information indicate that data are available in too few cases, in too little detail, and in a form too unavailable for evaluation by potential users or critics of the product.

TABLE 40

Frequencies and Percentages of Type of Field Test Information Available

Type of Field Test Information	N	%
Reference to Published Field Test	87	13%
"Field Tested by Developer" Statement in Catalog Description	83	13%
Unpublished Data or Report	22	3%
Developer's Letter Suggested Positive Results	7	1%
Field Test Planned or in Progress	12	2%
No Field Test or Results Available to Developer Only	77	12%
No Information	369	56%
Total	657	

The field testing of teacher training products can be expensive and difficult. In many cases, it may not seem important enough in view of the nature of the product and past experience with such products (e.g., manuals and programmed-instructional materials) to justify the cost. The validational field testing of a product can cost much more than the development of the product itself. Yet, it must be clear that the present state of affairs should not be allowed to continue much longer. Norms should be developed in this field comparable to the ethical and professional standards that require the publisher of any new psychological test to furnish evidence concerning its reliability and validity (cf. "Standards for Educational and Psychological Tests and Manuals." American Psychological Association: Washington, D. C., 1966).

There are several possible models for handling the criticism and evaluation of teacher training products. One model has been applied for many decades to the evaluation of textbooks. Here, book reviews are written in the journals of curriculum and instruction for the various subject matter fields. Much of the evaluation is a far from disinterested presentation offered by the representatives of the books' publishers. A second model is the "consumers' union" organization, which would undertake to provide independent and disinterested empirical and judgmental evaluations of the various products, just as such organizations now evaluate home appliances and other products. A third model might take the form of a journal in which independent and disinterested empirical reports of field tests are presented just as various journals now publish validations of educational and psychological tests (e.g., Educational and Psychological Measurement and the Journal of Educational Measurement). A fourth model might take the form of a government agency, perhaps within the National Institute of Education, that would make such evaluations for the educational public in the same way that the Food and Drug Administration now performs such a service to protect the general public from dangerous or useless things. A fifth model could be a trade association-sponsored agency, such as Underwriters Laboratories, which certifies the safety of electrical appliances.

Which of these models, or some other, ought to be developed? Why is the available information on field tests unsatisfactory? The field of teacher training product development is still young; support for the development of such products hardly existed prior to the initiation of the federal program of Research and Development Centers and Educational Laboratories between 1964 and 1966. And it was only after some years of relatively unfocused effort that the Centers and Laboratories became oriented toward product development. Hence, that orientation has had some strength for only about five years. Much of the effort in that period has had to be poured into the creation of products that might be worth testing, rather than into the testing itself. It is premature to criticize product developers harshly for the relative dearth of evaluative data.

Finally, it should be pointed out that the responsibility for the testing and evaluation of teacher training products should not be placed solely on the product developers themselves. They can never be sufficiently disinterested about their own products to be capable of providing the objective, critical, and valid information that users and others must have. For this reason, products should be made available for evaluation by all parties that have a stake in the improvement of teacher education.

Further Uses of the Computerized Catalog of Teacher Training Products

The creation of PTE's computerized catalog of teacher training products has indicated the types of teaching behaviors developers have addressed and has facilitated the cross-tabulations of products reported above. What further uses does the catalog have?

The catalog is already being used within the Program on Teaching Effectiveness in two ways. First, the catalog data and some products in categories of special interest for the cognitive, social-emotional and organizational domains of teacher behavior are being examined in detail. More intensive exploitation of the data should throw additional light on the state of the field of products related to these areas of behavior.

Second, a factor analysis of the intercorrelations among the product descriptors has been completed. It is expected to yield dimensions or factors that will be useful for describing the world of teacher training products--a world that reflects the judgments of (a) developers about the kinds of teacher behaviors for which it was worthwhile to develop teacher training products, (b) the authors of the PTE Product Description Form about the dimensions of the products that were worth describing, and (c) the product analysts in applying the Product Description Form to the source catalog descriptions of the products. The results of the factor analysis should reflect the combined judgments of developers and product analysts. A preliminary examination of the results indicates that the factor analysis has yielded dimensions that make sense in describing teacher training products in terms of targeted teacher behaviors and student achievement.

A third major use of the computerized catalog has been foreseen but is not yet possible outside SCRDT--a search service for teacher training products similar to the Educational Resources Information Center (ERIC) service for publications on topics in the field of educational research and development. The stored catalog data could be searched for products dealing with any of the many dimensions listed on the Product Description Form, or with any combination of them; the result would be a computer printout listing as much or as little information on the products as was requested, with cross-references to similar or related products. Because the catalog is computerized, it is flexible. Information about new products could be added as it became available.

How such a search service might be offered is under consideration. The catalog has thus far served the purpose of providing a survey of the state of the field of teacher training product development. Now, perhaps, it should be taken over by an organization already equipped and oriented toward a service function, rather than a research and development function.

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APPENDIX A: Form Letter Request for Information

Gentlemen:

The SCRDT Program on Teaching Effectiveness is collecting information on teacher training products. Although our review of the literature has thus far been highly effective, we are concerned that there may be sources that we have overlooked or that are unpublished. Our goal is to describe every teacher training product (as defined below) now or soon to be available. To this end we are requesting your help.

We shall be very grateful if you will use the enclosed form to provide information on any teacher training products developed, or in the process of being developed, in your organization. By "teacher training product" we mean a product that provides an individual trainee or a group of trainees with opportunities to try out procedures and practice the skills presented in the product. The mode of presentation of ideas is open--it may be a manual, a game, an audio tape, a videotape, a film, slides, flash cards, a lecture, or any other mode or combination of modes. But the product must require the learner's participation beyond reading, listening, or watching. For example, it may require him to respond to questions, to try out a form of explaining, to practice a type of questioning, or to make a type of decision.

The result of our efforts will be a publication which will summarize descriptive data from the literature and from information provided by you and others. The publication will be a resource for teachers, teacher educators, and educational research and development workers to use in identifying materials and procedures to improve teacher education.

Your cooperation and prompt reply will be greatly appreciated.

Sincerely yours,

N. L. Gage, Director
Program on Teaching Effectiveness

NLG:pb

APPENDIX B: Advertisement in Educational Researcher

INFORMATION REQUEST

Developers of teacher training products that require the trainee to participate beyond listening, reading, or viewing are asked to send information about their products to N. L. Gage, Stanford Center for Research and Development in Teaching, Stanford, Cal. 94305, for inclusion in a comprehensive catalog being developed at the Center.

APPENDIX C: Teacher Training Product Description Form

1 Product ID_____

2 Product Title:_____

3.1 Developer (Organization and/or Individuals):_____

_____

3.2 (Address)_____

_____

4.1 Supplier:_____

4.2 (Address)_____

5 Source(s) of Reference Information:_____

_____

6 Subject Matter Specificity
Topic within subject matter

6.1 ___None
6.2 ___Reading
6.3 ___Foreign languages_____
6.4 ___Other language skills (English)_____
6.5 ___Mathematics
6.6 ___Science
6.7 ___Social studies
6.8 ___Physical education
6.9 ___Music
6.10 ___Art
6.11 ___Others_____
6.12 ___Bilingual or Multicultural

7 Target Audience
Role

7.1 ___Preservice trainees
7.2 ___Inservice teachers
7.3 ___Administrators
7.4 ___Teacher aides
7.5 ___Supervisors
7.6 ___Teacher educators
7.7 ___Others_____

8 Grade level

8.1 ___Teachers in general
8.2 ___Elementary teachers
8.3 ___Junior high teachers
8.4 ___Secondary teachers
8.5 ___Junior college teachers
8.6 ___College teachers
8.7 ___Others_____
8.8 ___Early childhood

9 Target Teacher Outcomes
Planning skills

9.1 ___Selecting instructional materials
9.2 ___Obtaining instructional materials
9.3 ___Preparing instructional materials
9.4 ___Interaction with teachers in planning
9.5 ___Teacher-pupil planning
9.6 ___Selecting instructional process strategies
9.7 ___Arranging the instructional environment
9.8 ___Selecting behavior modification strategies
9.9 ___Others_____
9.10 ___Organizing students
9.11 ___Developing procedures and routines
9.12 ___Evaluating instruction and instructional design

10 Presentation skills

10.1 ___Listening
10.2 ___Explaining
10.3 ___Questioning
10.4 ___Giving examples
10.5 ___Pacing
10.6 ___Introducing
10.7 ___Sequencing
10.8 ___Summarizing
10.9 ___Individualizing instruction
10.10 ___Emphasizing
10.11 ___Stimulating
10.12 ___Using groups
10.13 ___Gestural behavior
10.14 ___Reviewing
10.15 ___Motivating
10.16 ___Reinforcing
10.17 ___Eliciting feedback
10.18 ___Using games
10.19 ___Managing field trips
10.20 ___Using AV equipment
10.21 ___Giving homework
10.22 ___Preventing disciplinary problems
10.23 ___Substitute teaching
10.24 ___Other_____
10.25 ___Structuring, establishing rapport, providing atmosphere
10.26 ___Utilizing deductive, inductive thinking, or problem solving

11 Skills in the unplanned aspects of teacher behavior

11.1 ___Managing student (problem) behavior
11.2 ___Providing feedback
11.3 ___Informal interaction with students
11.4 ___Interaction with parents
11.5 ___Interaction with other teachers
11.6 ___Interaction with supervisors
11.7 ___Interaction with staff
11.8 ___Use of student ideas
11.9 ___Other_____

12 Assessment and evaluation skills

12.1 ___Preparing objectives
12.2 ___Measuring student entry behavior
12.3 ___Selecting tests
12.4 ___Constructing tests
12.5 ___Assessment of student cognitive behavior
12.6 ___Assessment of student social-emotional behavior
12.7 ___Evaluation of student cognitive behavior
12.8 ___Evaluation of student social-emotional behavior
12.9 ___Reporting procedures and record keeping
12.10 ___Teacher self-observation
12.11 ___Other_____
12.12 ___Collecting and quantifying data
12.13 ___Involving students in self-evaluation

13 Affective outcomes

13.1 ___Ethics and values about teaching profession
13.2 ___Attitudes toward teaching
13.3 ___Teacher self-concept
13.4 ___Teacher locus of control
13.5 ___Job satisfaction
13.6 ___Attitudes toward subject matter
13.7 ___Attitudes toward students
13.8 ___Motivation to achieve
13.9 ___Ability to get along with others
13.10 ___Other_____

14 Other skills

14.1 ___Applying for a job
14.2 ___Collecting and administering money
14.3 ___First aid
14.4 ___Moving groups of students
14.5 ___Playing games/supervising recreation
14.6 ___Other_____
14.7 ___Representing school and school programs
14.8 ___Involving others in school programs
14.9 ___Developing subject-related skills
14.10 ___Solving problems

15 Target Student Outcomes

Cognitive

15.1 ___Acquisition of information
15.2 ___Comprehension of information
15.3 ___Application of information
15.4 ___Creativity
15.5 ___Intellectual independence
15.6 ___Other_____

16 Social-Emotional

16.1 ___Emotional adjustment
16.2 ___Increase of interest
16.3 ___Motivation to achieve
16.4 ___Change of beliefs and attitudes
16.5 ___Improvement of self-concept
16.6 ___Learning of social roles
16.7 ___Learning of values
16.8 ___Engendering internal locus of control
16.9 ___Decrease of disruptive behavior
16.10 ___Emotional independence
16.11 ___Ability to get along with others
16.12 ___Other____ _____

17 Product Availability: 17.1 Available now: Purchase price $_____
17.2 Rental price $_____
17.3 Cost per t $_____
17.4 Soon available: _____

18 Nature of Training Situation
Materials provided with product: __manuals; __games; __films; __videotapes; __audiotapes; __other_____

19 Materials and equipment to be provided by user: __VTR recording equipment; __VTR playback; __film projector; __tape recorder; __slide projector; __filmstrip projector; __other_____

20 Time required to administer: 20.1 Total number of hours_____
20.2 Recommended length of units_____

21 Personnel required to administer training

21.1 ___Outside consultant
21.2 ___Supervisor or leader familiar with materials
21.3 ___Self-administered
21.4 ___Other_____

22 Number of trainees using training at one time: 22.1 Minimum_____
22.2 Maximum_____

23 Nature of skills practice during training

23.1 ___Paper and pencil exercises
23.2 ___Teaching to peers
23.3 ___Teaching to students
23.4 ___Other_____

24 Skills learned during training are used:	largely	sometimes	never
24.1 prior to interaction with students	_____	_____	_____
24.2 during interaction with students	_____	_____	_____
24.3 after interaction with students	_____	_____	_____

25 References describing field test results

_____

_____

26 Additional descriptive and evaluative comments

_____

_____

Prepared by_____ Date_____

APPENDIX D: Interrater Reliability Estimate

To estimate the degree of involvement among analysts in describing teacher training products, a test was conducted with a sample of six training product descriptions described by each of the six analysts participating in the project. This test was conducted when approximately 300 of the 657 products that make up the computerized catalog had been identified and described. From this sample of 300 descriptions, six were selected. Each of these product descriptions had originally been described by a different analyst. The descriptions were reasonably complete, but none chosen had been validated by the product developers, since it was considered desirable to prevent information added by developers from "contaminating" the interrate reliability data. The six products thus selected were:

"Child Development--with Implications for Working with Disadvantaged Children and Their Families"

"Achieving Classroom Transitions B2-IV-3"

"Analysis of Pupil Attitude and Interest, Materials Available, with Special Emphasis on Oral Language"

"Bilingual Staff Development Modules"

"Content Analysis of Textbooks for Black Students, Grades 1-3"

"Developing Teacher Competencies"

The source catalog descriptions of the six selected products were given to each of the six analysts, who then filled out a Teacher Training Product Description Form for each product. The descriptions obtained were then compared to estimate the degree of interrater agreement.

Each analyst had to decide whether or not each descriptor on the Form applied to the product being described. The statistic used to describe interrater agreement for each descriptor was the number of agreements between analysts. If, for a given product, all six analysts agreed that a particular descriptor was applicable, this perfect interrater agreement was expressed by the number six. Likewise, if the six analysts

were unanimous in judging a descriptor to be not applicable to a given product, their complete agreement was expressed by the number six. Maximum disagreement among the analysts (three judging a descriptor to be applicable and three judging it to be not applicable) was expressed by the number three. Thus the possible v 'ues of the interrater agreement statistic were 3, 4, 5, or 6 for each descriptor.

The interrater agreement values for each descriptor were averaged across the six products described in this study. Table D-1 shows the values of the interrater agreement statistic for each descriptor and a mean value for each of the major sections of the Form.

The overall mean of interrater agreement over all 117 descriptors was 5.7. This figure indicates that the agreement was, by and large, close to the maximum possible value of 6, which would indicate complete unanimity among the analysts in making the dichotomous judgments called for.

The descriptors for which interrater agreement was lowest were "Selecting instructional process strategies" (4.7), "Assessment of student cognitive behavior" (4.7), and "Preparing instructional materials" (4.8). All of the other 114 descriptors received interrater agreement values of 5.0 or greater.

The degree of interrater agreement found in this study is considered to be adequate for the purposes of describing teacher training products. Nonetheless, steps were taken to improve the degree of interrater agreement. Explicit guidelines (see Appendix E) for future teacher training product descriptions were given to all analysts. Although a post-guideline interrater reliability study has not been performed, the analysts expressed the opinion that the guidelines helped substantially to increase the specificity of the task and therefore the degree of agreement between them.

TABLE D-1

Average Interrater Agreement Values Based on Description of Six Products by Six Analysts (the scale of values ranges from 3, Complete Disagreement, to 6, Perfect Agreement)

Descriptor	Average Interrater Agreement
Subject Matter Specificity:	5.8
None	5.2
Reading	5.5
Foreign languages	5.7
Other language skills (English)	5.2
Mathematics	6.0
Science	6.0
Social studies	6.0
Physical education	6.0
Music	6.0
Art	6.0
Others	5.8
Bilingual or multicultural	6.0
Target Audience Role:	5.5
Preservice trainees	5.2
Inservice teachers	5.0
Administrators	5.6
Teachers aides	5.8
Supervisors	5.6
Teacher Educators	5.8
Others	5.3
Target Teacher Outcomes:	
Planning skills:	5.5
Selecting instructional materials	5.0
Obtaining instructional materials	5.2
Preparing instructional materials	4.8
Interaction with teachers in planning	6.0
Teacher-pupil planning	6.0
Selecting instructional process strategies	4.7
Arranging the instructional environment	5.0
Selecting behavior modification strategies	5.6

TABLE D-1 (Continued)

Descriptor	Average Interrater Agreement
Others	5.3
Organizing students	6.0
Developing procedures and routines	6.0
Evaluating instruction and instructional design	6.0
Presentation skills:	5.9
Listening	6.0
Explaining	6.0
Questioning	6.0
Giving examples	6.0
Pacing	6.0
Introducing	5.6
Sequencing	5.2
Summarizing	5.3
Individualizing instruction	6.0
Emphasizing	6.0
Stimulating	6.0
Using groups	5.8
Gestural behavior	6.0
Reviewing	6.0
Motivating	6.0
Reinforcing	6.0
Eliciting feedback	5.8
Using games	6.0
Managing field trips	6.0
Using AV equipment	6.0
Giving homework	6.0
Preventing disciplinary problems	6.0
Substitute teaching	6.0
Others	5.3
Structuring, establishing rapport, providing atmosphere	6.0
Utilizing deductive, inductive thinking, or problem solving	6.0
Skills in the unplanned aspects of teacher behavior:	5.6
Managing student (problem) behavior	6.0
Providing feedback	5.6
Informal interaction with students	5.6
Interaction with parents	5.5

TABLE D-1 (Continued)

Descriptor	Average Interrater Agreement
Interaction with other teachers	5.3
Interaction with supervisors	5.5
Interaction with staff	5.3
Use of student ideas	5.8
Others	5.8
Assessment and evaluation skills:	5.6
Preparing objectives	5.6
Measuring student entry behavior	5.5
Selecting tests	6.0
Constructing tests	6.0
Assessment of student cognitive behavior	4.7
Assessment of student social-emotional behavior	5.3
Evaluation of student cognitive behavior	5.3
Evaluation of student social-emotional behavior	5.6
Reporting procedures and record keeping	6.0
Teacher self-observation	5.6
Others	5.0
Collecting and quantifying data	6.0
Involving students in self-evaluation	6.0
Affective outcomes:	5.7
Ethics and values about teaching profession	6.0
Attitudes toward teaching	5.6
Teacher self-concept	6.0
Teacher locus of control	6.0
Job satisfaction	5.6
Attitudes toward subject matter	5.6
Attitudes toward students	5.3
Motivation to achieve	6.0
Ability to get along with others	5.8
Others	5.3
Other skills:	6.0
Applying for a job	6.0
Collecting and administering money	6.0

TABLE D-1 (Continued)

Descriptor	Average Interrater Agreement
First aid	6.0
Moving groups of students	6.0
Playing games/supervising recreation	6.0
Representing school and school programs	6.0
Involving others in school programs	6.0
Developing subject-related skills	6.0
Solving problems	6.0
Others	6.0
Target Student Outcomes:	
Cognitive:	5.6
Acquisition of information	5.2
Comprehension of information	5.3
Application of information	5.5
Creativity	5.8
Intellectual independence	6.0
Others	5.8
Social-Emotional:	5.9
Emotional adjustment	6.0
Increase of interest	5.6
Motivation to achieve	5.8
Change of beliefs and attitudes	6.0
Improvement of self-concept	5.8
Learning of social roles	6.0
Learning of values	5.8
Engendering internal locus of control	6.0
Decrease of disruptive behavior	6.0
Emotional independence	6.0
Ability to get along with others	5.8
Others	6.0

APPENDIX E: Guidelines for Describing Teacher Training Products

1. Product ID:
Leave blank.

2. Product Title:
Enter full title; no abbreviations; enter in order given.

3. Developer:
Enter individual's name here. Developer's name appears under title of product. If there is no individual's name listed, enter organization's name here. If information is unavailable, enter "unknown."

3.2 Address:
If an individual is named in 3.1, enter organization (if known), and mailing address here. If no individual is named in 3.1, list developing organization's mailing address here. If information is unavailable, enter "unknown."

4.1 Supplier:
Enter full name of organization as it appears in the distributor index of RFPBE here. Distributor equals supplier. If the supplier is the same as the developer, enter "same as developer." If information is not available, enter "unknown."

4.2 Address:
Enter the full address of the organization as it appears in the distributor index of RFPBE. If the address is the same as the developer's address, enter "same as developer." If information is unavailable, enter "unknown."

5. Source:
Enter "RFPBE, 1973, p.____."

6. Subject Matter Specificity:
Examine product title for explicit reference to a school subject matter. If no subject matter appears in the title, examine the annotation for reference to a specific subject matter. If a topic within a subject matter appears in the title or the annotation, check the general subject matter, e.g., mathematics; then enter the topic within subject matter, e.g., multiplication, in the space provided.

Please use black felt tip pens for filling out forms.

Please note case which calls for uniform description: Bilingual programs, bilingual language instruction, multicultural programs, teaching English as a second language, second language teaching, multicultural awareness, bilingual reading instruction, non-standard English instruction, etc.

For products falling within these categories:
Check 6.11, "others," and write in "Bilingual or Multicultural."
If product title or annotation mentions specific subject matter(s), e.g., reading, also check the appropriate category or categories, in addition to writing in "Bilingual or Multicultural" for 6.11.

7. Target Audience:
The target audience of a teacher training product must include one or more of the following roles: 7.1, 7.2, 7.4. For products in RFPBE for which "tea." is listed as the audience, check both 7.1 and 7.2, unless the words "student teacher," "student trainee," "teaching intern" or equivalent appear, in which case 7.1 only will be checked.

8. Grade Level:
For grade level, use the following decoding scheme for RFPBE's specification of "level" :

"All" equals 8.1

"Elem." equals 8.2

"Mid." equals 8.3

"High" equals 8.4

Do not use categories 8.5 or 8.6.

"E. Ch." equals 8.7; write in "Early Childhood."

9- 6. Target Teacher Outcomes and Target Student Outcomes

a) Locate all instances of product title in RFPBE Competency Index. Use the RFPBE-PTE translation code to select PTE target teacher and target student outcomes.
Note: New numbers have been added to the PTE form to allow for inclusion of all competency categories in RFPBE.

b) For target teacher outcomes:
Examine the RFPBE annotation and ask yourself the following question: "What does this product teach the trainee how to do?"
Note particularly the occurrence of key words in the annotation which correspond to PTE target teacher outcomes. However, do not confine yourself to looking for direct synonyms of PTE teacher outcomes. If the annotation gives sufficient information to suggest that the product may be aimed at a particular skill, check that outcome.
Be inclusive, rather than exclusive.

c) For target student outcomes:
Check only those student outcomes or synonyms for those outcomes which are explicitly mentioned in the annotation.
Caution: In some of the annotations, "student" is used to refer to the teacher trainee. Remember that PTE is using "student" to refer to the eventual pupil of the teacher trainee.

17. Product Availability:
Use "cost" for 17.1 (If a price is listed, write in the figure opposite 17.1; where a price is not given, leave 17.1 blank.)
Use "rental" for 17.2 (If a price is given, write in the figure opposite 17.2; where rental price is not given, leave 17.2 blank.)

Leave 17.3 and 17.4 blank for all RFPBE products.

18-23. Nature of Training Situation

18. Materials provided with product:
Locate the product title in the RFPBE Competency Index.
A code letter preceding the product title indicates the materials provided with the product.

"A" equals audiotapes

"B" equals manuals

"F" equals films

"G" equals games

"V" equals videotapes

"P" equals "other." Write in "Programmed text."

"S" equals "other." Write in "Slides or filmstrips."

If "K" and/or "M" is given for the product, examine the product annotation to determine the materials provided with the product.

19. Materials and equipment to be provided by user:
Check only equipment required to use materials provided with product. Be sure that there is a match between equipment provided by user and material provided with the product.

20. Time required to administer:
If the product description provides "Completion time," enter the number of hours to the nearest hour. If a range of hours is provided, e.g., "10-15 hours," enter the larger number. Enter the completion time only if it is expressed in hours. (Do not use days, weeks, or semesters.) If the completion time is not given in hours, either in the annotation or under "completion time," then leave 20.1 blank.

Leave 20.2 blank.

21. Personnel required to administer training:
Check 21.2 if annotation indicates that supervisor, leader, or coordinator familiar with materials is needed to administer training. Also check this item if a "coordinator's handbook," "leader's manual," etc. is mentioned.

Check 21.3 if training is conducted by an individual without a group or without the leadership of a coordinator or supervisor, e.g., a programmed text.

22. Number of trainees using training at one time:
If training is self-administered, enter "1" beside 22.1, after the word "minimum," and leave 22.2, "maximum," blank.

If annotation calls for "discussion" or "seminar" as part of the training, enter "2" beside 22.1, "minimum," and enter "10" beside 22.2, "maximum."

23. Nature of skills' practice during training:
The question to ask here is:
"What does the trainee have to do in order to learn the target skill?"

24. Skills learned during training are used:
For items 24.1, 24.2, and 24.3:
Check "never" if skills learned during training are used rarely during a particular period of the teaching process;
check "largely" if the skills are primarily intended to be used during a single period of the teaching process;
check "sometimes" if neither never nor largely is appropriate.

25. Reference(s) describing field test results:
If RFPBE annotation indicates that the product has been field-tested, write "Field-tested--need citation." Otherwise, leave blank.

26. Additional descriptive and evaluative comments:
Examples of information which would be included here:
Time required to administer, if provided in units other than hours.
Product is a part of a larger series; if so, give name of series.
Number of training sections, components, modules, etc. (if applicable).
Consumability of materials, e.g., are manuals reusable or not?
Indicate where pretests and/or posttests are provided with materials.
Brief summary of field test results.